INFLUENZA SELF-CARE

It's in your hands

How to care for yourself and others with influenza

Influenza happens every year. Scientists say a serious worldwide influenza epidemic – called a "pandemic" – may come at any time. While there is no way to prevent a pandemic, there are ways to lessen its effect.

This booklet gives valuable information on:

- How to prevent influenza.
- How to help yourself and others when influenza happens.
- When to seek medical care.

Alberta

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What is influenza?

Influenza is an infection of the lungs and airways caused by a virus. Various strains of influenza virus circulate throughout the world each year. In North America, influenza usually affects people between November and April.

The influenza virus often changes slightly. Most people who have had influenza will have some protection against the changed virus. However, 3 to 4 times each century the influenza virus changes in a major way. People will not have any protection against it and the virus will spread rapidly around the world. This global epidemic (pandemic) can cause serious illness and death.

How is influenza spread?

The influenza virus passes from person to person by droplets when an infected person coughs, sneezes or talks. Airborne droplets can enter the body through the eyes, nose or mouth. The virus, contained in droplets, can travel 1 to 2 metres in the air. It can live on hard surfaces for 1-2 days; on cloth, tissue and paper for 8-12 hours; and on hands for 5 minutes. People develop symptoms of influenza from 1 to 3 days after becoming infected. They are contagious from the day BEFORE they have the first symptoms until 5 days after the symptoms start.

What are the symptoms?

Symptoms of influenza include:

- sudden fever of 38°C (100.4°F) or higher.
- dry cough.
- aching body, especially head, lower back and legs.
- extreme weakness and tiredness.

Other symptoms can include:

- chills.
- aching behind the eyes.
- loss of appetite.
- sore throat.
- runny or stuffy nose.

For people older than 75 with influenza, the temperature may be lower, for example 37.2°C (99°F). They may also experience vomiting, diarrhea or stomach pain.

Fever usually goes down and the person starts to feel better in 3 to 5 days. Tiredness and cough can continue for several weeks.

Influenza symptoms are different from those of a cold or gastroenteritis ("stomach flu").

Is it influenza, a cold or "stomach flu"?

Symptoms/ Description	Influenza	Common Cold	Stomach Flu
Fever	Usually high	Sometimes	Rare
Chills, aches, pain	Frequent	Slight	Common
Loss of appetite	Sometimes	Sometimes	Common
Cough	Usual	Sometimes	Rare
Sore throat	Sometimes	Sometimes	Rare
Sniffles or sneezes	Sometimes	Common	Rare
Involves whole body	Often	Never	Stomach/ bowel only
Symptoms appear quickly	Always	More gradual	Fairly quickly
Extreme tiredness	Common	Rare	Sometimes
Complications	Pneumonia; can be life threatening	Sinus infection Ear infection	Dehydration

How serious is influenza?

Certain groups are at risk to develop serious complications, such as pneumonia, that may even result in death. These groups include:

- children less than 2 years old and seniors, as they have weaker immune systems.
- people with weakened immune systems either by disease or medication/treatment.
- people with certain chronic illnesses, such as heart or lung disease.

Annually, influenza and its complications have a substantial effect on the health-care system, in addition to their effect on school/work absenteeism and productivity.

How to protect yourself and others against influenza

Choose to immunize

Because the influenza virus is always changing, a new vaccine is created each year containing the 3 virus strains most likely to circulate. This means you need to be immunized yearly. The best time to be immunized is during October and the first half of November – just before the influenza season starts, because it takes 2 weeks for the vaccine to become effective. Even after influenza arrives in the community, it is not too late to get immunized.

The vaccine cannot cause influenza because the virus in the vaccine is killed. The vaccine is 70 - 90% effective in young, healthy people and protection lasts about 6 months. The vaccine is less effective for people with weakened immune systems, but if they are immunized, the illness will be less severe if they do become infected.

Since vaccine strains are selected 6 to 9 months before the start of influenza season, there is a slight chance the circulating strain may change before the season actually starts. **The vaccine will NOT protect against other respiratory illnesses.**

Who should be immunized?

- People who are at greatest risk of serious complications.
- People such as caregivers, volunteers and health-care workers who might transmit the disease to persons who are at risk.

Alberta Health and Wellness covers the cost for the above at risk people to be immunized. Some employers offer vaccine to their staff. People who are not at risk may be immunized for a fee. Everyone is encouraged to take advantage of these opportunities.

For more information see back cover.

Who should not be immunized?

- People who are severely allergic to eggs, because eggs are used to make vaccine.
- People who have severe allergies to any part of the vaccine.
- People who have had a severe reaction to a previous influenza vaccine.
- Children under 6 months of age.
- People who are ill with fever (They can be immunized after symptoms improve).

Possible vaccine reactions

The most common reaction is some redness and soreness on the arm. Some people may have fever, tiredness and aching after 6 to 12 hours. This may last for 1 to 2 days. Rarely a person has had an allergic reaction within 12 hours to some other ingredient in the vaccine.

What about antiviral medication?

A doctor may prescribe antiviral medication (for example Symmetrel® or Tamiflu®) to prevent influenza for:

- people who are at risk but cannot be immunized.
- at risk people who were immunized after influenza entered the community and need protection until the vaccine takes effect.
- non-immunized people who are in contact with at risk people.
- those at risk in an outbreak when the circulating strain is different from the vaccine.

What about pneumonia vaccine?

One of the major problems that can occur after influenza is pneumonia. There is a vaccine that protects against the bacteria that most often cause pneumonia. Alberta Health and Wellness provides this vaccine free to those who are at risk, including:

- people aged 65 and older.
- residents of long-term care facilities.
- individuals aged 2 years and older with certain chronic conditions.

Most people need the pneumonia vaccine only once in their lifetime. The vaccine can be given at the same time as the influenza vaccine or any time of the year. The pneumonia vaccine is given to infants as part of Alberta's routine immunization program.

Where to get immunized?

- local public health centres by appointment or at an offsite influenza immunization drop-in clinic (see back page).
- many doctors' offices (call ahead).
- some work places and pharmacies.

Wash your hands!

Next to immunization, the single most important way to prevent influenza is frequent hand washing.

Wash your hands

BEFORE:

- handling or eating food or feeding others.
- brushing or flossing teeth.
- inserting or removing contact lenses.
- and after treating wounds or cuts.

AFTER:

- having any contact with a person who has influenza or their immediate environment.
- going to the toilet or changing a diaper.
- blowing your nose or wiping a child's nose.
- coughing or sneezing.
- handling garbage.

Children should wash their hands after playing with toys shared with other children.

How to wash hands

- Use regular soap. Antibacterial soap is not necessary. Alcohol hand rubs are also effective.
- Rub hands vigorously together for at least 15 seconds covering all surfaces.
- Rinse under running water.
- Dry with a clean or disposable towel.

If using a public restroom, use a disposable towel to turn off the faucet to avoid further contact with the tap.

Respiratory etiquette - "Cover your Cough"

- Throw away tissues after wiping your nose.
- Cover your nose and mouth when sneezing or coughing.
- Wash hands after coughing, sneezing or using tissues.
- Keep your fingers away from your eyes, nose and mouth.

Other ways to prevent the spread of influenza

- Avoid crowds during influenza season.
- Visit those who have influenza only if necessary, and stand more than 3 feet away from them.
- Keep personal items separate if a household member has influenza. Clean surfaces around them often with a detergent cleanser.
- Do not share personal items or drinks.

Stay well

- Drink plenty of water.
- Don't smoke.
- Exercise regularly.
- Take a multivitamin daily, if you are an older adult.
- Decrease stress, stay optimistic and be socially active.

Be prepared

Everyone should plan ahead in case they become ill with influenza. This is especially important if you live alone, are a single parent or a caregiver.

- Have enough fluids and other supplies, such as tissues, on hand to last 1 to 2 weeks.
- Have medication for fever and a thermometer handy.
- Know what options are available at work when you are ill, for example working from home.
- Have a backup caregiver for loved ones.

How to manage influenza in adults

General self-care measures

- Rest.
- Avoid contact with others while contagious (5 days) if possible.
- Drink extra fluids.
- Gargle with warm salt water.
- Use throat lozenges, saline nose drops, a humidifier.
- Don't smoke. Avoid second hand smoke.
- Talk to others about concerns and ask for help if needed. Keeping in touch by phone or email can help with feelings of aloneness when sick.
- Treat symptoms with over-the-counter (non-prescription) medication with careful attention to the following guidelines.

Talk to your pharmacist or health-care provider about what product to use, dosage, possible side effects, and conditions when you should not use the remedy.

General guidelines for over-the-counter medications (OTCs)

- To prevent adverse reactions or taking extra medication that will have little or no effect, use an OTC remedy that treats only one symptom and/or has only one active ingredient.
- If you are taking more than one medication at a time, check the labels to avoid taking the same ingredient twice.
- Try "regular strength" products before "extra strength".
- Follow instructions on the label. Note possible side effects or drug/health conditions when the medication should not be used.
- Check the expiry date on medications in your home. Take outdated medications to a pharmacy for disposal.
- Keep all medications out of reach of children.

To treat:

Muscle pain and fever

- Use acetaminophen (the best choice for older adults), for example Tylenol®. If you take acetaminophen for a long time or in high doses, it can affect the liver and kidneys; or
- Ibuprofen, for example Advil® or Motrin®. Ibuprofen can irritate the stomach.

Cough

Try a medication with Dextromethorphan (DM) for a dry cough that prevents you from sleeping or causes chest discomfort. Delsym® and Benylin-Dry Cough®, contain DM (without other ingredients).

Stuffy nose

Use a decongestant. Nose drops or sprays act quickly and have fewer side effects than medications you take by mouth but should only be used for 2 – 3 days to avoid rebound congestion. If stuffy nose continues, consider an oral medication such as pseudoephedrine. Decongestants may cause dry mouth, sleep problems, rapid heartbeat or other side effects. People who have long-term health problems or who are on other medications should not take decongestants without talking to a health-care provider.

Sore throat

Try lozenges or throat sprays. Dyclonine (for example, Sucrets®) works best to numb the throat. Products containing honey, herbs or pectin soothe the throat.

Complementary medicines

There is some research that shows the following complementary medicines may help to shorten influenza illness or lessen its severity: Vitamins E and C, COLD-FX®, Echinacea Plus® (an herbal tea), a standardized extract of elderberry (Sambucol®), Quercetin, Bifidobacterium breve, Homeopathic Oscillococcinum, Gingyo-San (a traditional Chinese herbal medicine), and Kan Jang.

Find out all you can about any complementary medications you are thinking of or are taking. For example, echinacea is unsafe for people with autoimmune disease (including type 1 diabetes, rheumatoid arthritis and multiple sclerosis), suppressed immune systems, and certain allergies. Follow the guidelines for OTC medications.

Tell your health-care provider about any OTCs or complementary medicines you are taking.

When to seek medical care

Adults with influenza should seek medical care if they have heart or lung disease or any other chronic condition that requires regular medical attention. They should also seek care if they are frail, or if they have an illness or are on treatments that suppress the immune system.

See a physician immediately if you, or a person in your care, have any one of the following symptoms:

- shortness of breath while resting or doing very little.
- difficult or painful breathing.
- coughing up bloody sputum.
- wheezing.
- chest pain.
- fever for 3 to 4 days without improvement.
- feeling better then suddenly having a high fever or becoming ill again.
- extreme drowsiness and difficulty awakening.
- disorientation or confusion.
- severe earache.
- sudden inability to function in a normally independent elderly person.
- constant vomiting, especially in an elderly person.

Prescription medications

Antibiotics are not normally prescribed for influenza but your doctor may prescribe an antibiotic for complications such as pneumonia.

Antiviral medications can decrease the length and severity of the illness. However, antivirals must be started within 48 hours after the first symptoms appear in order to be effective.

Managing influenza in children

Symptoms to look for in children

Influenza is more severe in children under 5 years, especially between the ages of 6 and 12 months. Children with influenza may have the same symptoms as adults, but there are some differences in babies and toddlers. For example:

- A fever can be the only symptom of influenza in babies.
- Seizures, or other central nervous system symptoms, may appear in some infants. Children may also have headache, vomiting, irritability and sensitive eyes.
- Young children usually have higher temperatures, often over 39.5°C (103.1°F).

For more information contact:

Health Link Alberta

Edmonton, call 408-LINK (5465)
Calgary, call 943-LINK (5465)

Outside Edmonton and Calgary local calling areas, call toll-free 1-866-408-LINK (5465)
visit: **www.healthlinkalberta.ca**

Public Health Centres (Monday - Friday, daytime hours), or physicians or pharmacists

Alberta Health and Wellness

visit: **www.health.gov.ab.ca**

Fact Sheets available:

- Pandemic influenza
- Hand washing to prevent influenza
- How to take a temperature - children and adults
- Over-the-counter (non-prescription) medications for influenza
- Influenza antiviral medications
- Dealing with stress or feelings of fear because of influenza

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Alberta

INFLUENZA SELF-CARE

A reference for health-care providers

It's in your hands

Alberta

106-02163/

Stay well during influenza season

through hand washing,
covering your cough
and immunization

Learn more about how to prevent influenza, how to look after yourself, family, and others when ill, and when to seek medical care.

Visit **www.health.gov.ab.ca** or contact:

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CD0102 June 2005

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Introduction

As part of Alberta's contingency planning for a pandemic of influenza, a province-wide influenza self-care program was identified as a critical health services measure to assist regional health authorities (RHAs), long-term care (LTC) facilities and health-care providers overall in their ability to respond to an influenza pandemic (a time of scarce health-care resources).

Goals of influenza self-care are:

- to increase the confidence and ability of the public in using self-care measures to prevent and treat influenza and
- to educate the general public about when to access the health-care system.

Although the influenza self-care program was primarily identified as part of pandemic planning, it was anticipated that it would also be useful in the inter-pandemic period, during the annual influenza season. Each year, influenza affects the health of the population and places a strain on the health-care system. Instituting a self-care program in the inter-pandemic period could benefit individuals, health-care providers and the overall delivery of health services, as well as offer the opportunity to implement, test, and refine future pandemic influenza planning strategies.

Based on current literature (refer to Appendix A), an education program perceived to be supported by personally known sources (e.g. physician or employer) or one that is integrated into the health-care system, with support components, e.g. nurse counsellors, telephone help lines, was more likely to find reductions in health-service utilization rates.

The following information is intended to guide health-care providers while working with their clients/patients with a view to educating them about how to stay well and manage illness for themselves and their families during regular influenza season or a pandemic of influenza (Refer to Appendix B for pandemic influenza implications for self-care).

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- About half of children 3 years old or younger have symptoms such as nausea, vomiting, diarrhea and stomach pain.
- Influenza viruses can cause croup, pneumonia or bronchitis in young children.
- Ear infections and red, sore eyes are more frequent in young children. Sore muscles are also common.

Note: Very young children and infants do not know how to tell people they have sore muscles or a headache. They may be irritable and eat poorly. They sometimes have a hoarse cry and barking cough.

Children over 5 years old and adolescents have the same symptoms as adults.

How to care for a child with influenza

- Use acetaminophen (for example Tylenol®) for fever and muscle pain. Take the child's temperature first. Do not wake a child to give medication. Ibuprofen (for example Motrin®) is another option, but it should not be used for infants less than 4 months old.

Children under 18 should NOT take acetylsalicylic acid (ASA) for example Aspirin® or any products containing ASA. Combined with influenza, ASA can cause Reye's Syndrome, a very serious condition affecting the nervous system and liver.

- Dress a child in lightweight clothing and keep room temperature at 20°C.
- Offer water or juice or breast feed often while the child is awake.
- Do not use cool baths or alcohol rubs.
- Encourage the child to rest or involve them in quiet activities for approximately 5 days.
- Try saline nose drops for stuffy nose or cough.
- Use a humidifier, except with asthmatic children.

- Elevate the head of the bed; infants may be more comfortable in a car seat or baby swing.
- Treat other symptoms with OTC medications **if appropriate.**
    - Use cough suppressant (DM) for a dry cough in children over 2 years old only if it is interrupting your child's sleep. Do not use DM for asthmatics or to treat a moist cough.
    - Try decongestant sprays in children over 6 months old; oral decongestants with older children if needed.
    - Use throat lozenges or warm salt water gargles for children over 6 years old if needed.

Talk to your pharmacist or health-care provider about what product to use, dosage, possible side effects, and conditions when you should not use the remedy.

Clean your humidifier every day to prevent mold blowing in the air. Use hot water with 1 part bleach to 10 parts water. Scrub the inside with a cloth or bottle brush to get into tight corners. Rinse well with hot water.

When to seek medical care for a child

Almost all children with influenza have fever. So whether or not a child has a fever is not helpful as a sign of how severe their illness is.

Seek medical care if a child has influenza and any one of the following conditions:

- is less than 3 months old.
- has heart or lung disease or any chronic illness requiring regular medical care.
- has a disease or treatments that weaken the immune system.
- takes ASA regularly for a medical condition.
- has a change in breathing (such as breathing fast) or difficulty breathing.
- is very listless and loses interest in playing, watching TV, eating or drinking.
- is very irritable and cries a lot.
- urinates less than usual, for example less often than every 6 hours while awake; or has a dry diaper for more than 3 hours if younger than 6 months, or longer than 6 hours if 6 to 23 months old.
- looks very ill and the caregiver is worried.

When to take a child to the emergency room

Go to a hospital emergency room right away if the child:

- has severe trouble breathing and it is not caused by a stuffy nose.
- has blue lips or hands, suddenly becomes pale, or has cold legs up to their knees.
- is droopy or unable to move.
- is so sleepy they don't respond when you try to get them up.
- shows signs of pain, such as headache or stiff neck, especially if they also have fever, are listless and their eyes are sensitive to light.
- seems confused.
- has a seizure.

INFLUENZA SELF-CARE

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This document was prepared through extensive consultation with health-care providers and community members. The contents are grounded in literature and current research, and use key principles of adult learning and communications. Expert opinion was obtained where literature was lacking.

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1.

Influenza: informing the public

1. Influenza

Influenza is an infection of the cells that line the respiratory system. In North America, it usually affects people during the winter (November – April). It is caused by one of three virus types:

- Influenza A can cause the most severe and the most widespread disease. It naturally infects mammals, including pigs and horses, as well as birds.
- Influenza B affects only humans. It is a milder illness and outbreaks tend to spread throughout a smaller area. It occurs commonly in children.
- Influenza C is quite rare, causes mild symptoms and has little impact on public health.

The influenza virus is defined by two different protein components (antigens) on its surface. The antigens are spike-like features called Haemagglutinin (H) and Neuraminidase (N) components. The H antigen attaches the virus to cells and affects how the virus multiplies, and the N antigen helps the virus release from infected cells. Influenza strains are named by the place and year in which the strain was first discovered and the identity of their H and N antigens. There are currently 15 different H and nine different N components.

The genetic makeup of the influenza virus allows it to undergo frequent minor changes in the H and to a lesser degree, the N proteins, which enables a new strain to emerge. This is called antigenic drift.

Once a person has had influenza, the body develops antibodies to the virus that caused it. This produces immunity or a reduced likelihood of getting influenza from that particular strain again. However, those antibodies don't protect the body from new strains of influenza.

Even though the virus may change slightly from year to year, most people will continue to have some protection against the slightly changed virus, since it is closely related to the previously circulating virus. As an increasing number of individuals in the community develop antibodies against the circulating strain, altered strains are likely to emerge. New strains emerge, circulate for a few years and then are replaced by the next emerging strain to which the population has limited immunity. Depending on the extent of variation from strain to strain, the new circulating virus may cause more or less severe outbreaks of disease. Epidemics, local outbreaks of influenza, can occur every two or more years because of antigenic drift.

Every year, various strains of influenza virus circulate throughout the world, often causing local outbreaks and regional epidemics. Although outbreaks in different regions generally vary in intensity and severity, the fact millions of people travel everyday means regional strains of influenza can show up anywhere.

2. Pandemic influenza

Three to four times each century, a radical change will occur in the genetic material of the influenza A virus, and a new subtype of the virus will suddenly appear with a completely new H or N component. This is called antigenic shift. Because it is a radically different strain, protection people have developed to influenza that occurs every year will not apply. Everyone is susceptible to infection with the new strain and will be at greater risk of developing severe complications of influenza infection, like pneumonia. In such a situation, the virus will spread rapidly around the world, and a global epidemic, called a pandemic, will occur. Only influenza A is capable of antigenic shift causing human pandemic of influenza.

A pandemic can occur at any time and potentially can cause serious illness, death and social and economic disruption throughout the world. Experts agree future influenza pandemics are inevitable, but the timing of the next pandemic cannot be predicted. The World Health Organization

(WHO) has a Global Influenza Surveillance Network, a partnership of 85 countries, which monitors the influenza viruses circulating in humans and rapidly identifies new strains. However, there may be little warning before a pandemic strikes.

Three influenza pandemics occurred during the twentieth century because of antigenic shift:

- The Spanish strain that emerged in 1918 – 19 was due to Type A (H1N1) and resulted in more than 20 million deaths worldwide.
- The Asian strain that appeared in 1957 – 58 was caused by Type A (H2N2).
- The Hong Kong strain of 1968 – 69 was caused by Type A (H3N2).

In 1997, 18 persons (including six deaths) in Hong Kong developed avian influenza Type A (H5N1), which had previously been found only in chickens. The virus re-emerged in 2004, eventually causing widespread poultry outbreaks in Japan, South Korea, Cambodia, Vietnam, Thailand, China, Indonesia and Laos. There were a number of human infections with an associated death rate of >70 per cent. Agricultural practices in some countries in this area of the world often bring humans, birds, and pigs into close contact. In this environment, influenza viruses from the different species can mix and produce new strains that infect humans. Infections in humans so far resulted from direct contact with infected birds with limited evidence of person-to-person spread. Aggressive surveillance and preventive measures have been used, and thus far the virus has not spread from human to human.

In 1997, the WHO and member countries, including Canada began to make pandemic contingency plans to minimize the devastating effects of future pandemics. Alberta Health and Wellness (AHW) and their health regions have influenza contingency plans based on the federal plan.

Projections regarding the effect of pandemic influenza include:

- 3.7 – 7.4 times as many outpatient visits due to influenza as occur in a non-pandemic year,
- 3.9 – 6.9 times as many hospitalizations due to influenza as occur in a non-pandemic year, and
- 8.2 – 20.3 times as many deaths due to influenza as occur in a non-pandemic year.

3. Influenza transmission

Influenza is very contagious. The influenza virus easily passes from person to person by droplets and small particles of respiratory fluid when an infected person coughs, sneezes, or talks. The airborne droplets of respiratory fluids can enter the body through the mucus membrane of the eyes, nose, or mouth.

The influenza virus contained in droplets can

- travel one to two metres in the air.
- live for one or two days on hard surfaces, eight to 12 hours on cloth, tissue or paper.
- live five minutes on hands.
- live longer outside the body in cool, dry places.

Therefore, people can become infected when they shake the contaminated hand of someone who is ill, touch objects an ill person has used (e.g., dishes, telephones, doorknobs, handrails) or touch a surface the virus has landed on, and then touch their own nose, mouth or eyes. It is especially easy for the virus to spread where there are crowds or where people live, work, or study close together.

A person can pass the virus on for up to seven days after the onset of illness; three to five days in adults and up to seven days in children. Individuals are most infectious during the 24 hours before the onset of symptoms and during the most symptomatic period (three to five days).

4. Symptoms of influenza

Symptoms of influenza develop within one to three days after becoming infected with the virus. The individual suddenly develops a fever and possibly chills, and may have a headache and aching muscles, especially in the back and legs. Usually an infected person has a dry cough, feels weak and tired. Some have a sore throat, and a runny or congested nose. Most have decreased appetite. In general people feel very sick and want to stay in bed. The fever usually resolves in three to five days, and the person begins to feel better. However, tiredness and a cough can sometimes continue for several weeks.

People often mistakenly refer to stomach upsets and colds as influenza. Influenza is quite different from both of these. It rarely causes vomiting and diarrhea, but may do so in young children or elderly individuals. Unlike influenza, the common cold comes on gradually, rarely causes a fever, and is usually limited to a sore throat, coughing and sneezing, and a stuffy, runny nose. It is generally milder than influenza and people can carry on with their usual activities. Refer to Appendix C for a comparative chart.

5. How serious is influenza?

Most healthy people recover from influenza without any serious problems. However, certain groups of people are at risk for developing complications such as pneumonia, which may even result in death.

Groups include:

- children less than two years and seniors because they have weaker immune systems.
- individuals who have diseases or who are taking medications which affect the immune system, e.g. people on chemotherapy for cancer, those with HIV/AIDS, or who have received organ transplants, frequently develop complications.
- persons with chronic conditions such as heart disease, lung disease (cystic fibrosis, emphysema), kidney disease and diabetes. With these conditions it is easier for bacteria to invade the tissues already damaged by the influenza virus and cause other illnesses such as pneumonia. Influenza can also stress the body so that underlying chronic illness(es) may be worsened.
- Pregnant women, particularly those who are past the third month of pregnancy, have increased risks of developing complications.

6. Effect on the health-care system

Besides costs to individuals in terms of their health, the annual influenza season can have a large effect on the community, depending on how serious the outbreak is. The group with the highest reported rate of illness is school-aged children. School administrators need to be aware of the potential for increased rates of absenteeism at this time when planning important school events. Workplace absenteeism due to illness or providing care to family members reduces productivity. In addition, influenza-associated respiratory illnesses have a substantial effect on an already strained health-care system. Health-care service providers need to plan for increased utilization in all health-care settings during the influenza season.

Figure 1: Annual incidence of influenza like illness in Alberta, 1986 to 2003

In 'typical' years, influenza effects approximately 4 per cent of the population or 120,000 to 125,000 people. As the influenza season begins, physician's offices begin to see more individuals with influenza-like-illness (ILI). The number of individuals seeking care for ILI varies with the virulence of the circulating virus(es)

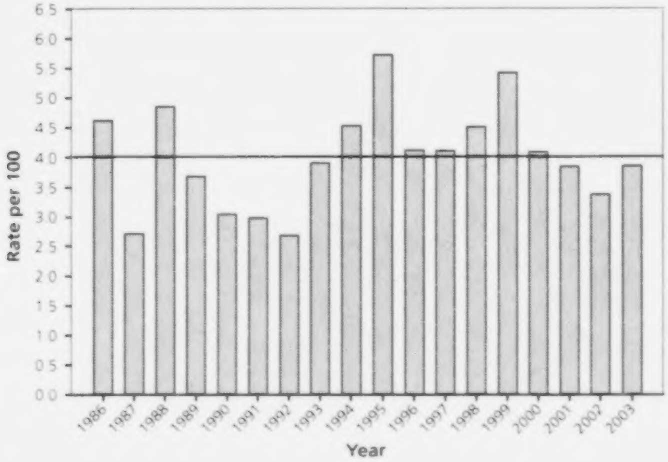


Figure 2: Age standardized mortality attributed to influenza, Alberta, 1986 – 2002

While influenza generally does not have a large effect on mortality, this can change depending on the virulence of the circulating strain. Also, influenza can contribute to other causes of death such as pneumonia.

Influenza attributed mortality rapidly increased above the historical norm during the 1998/1999 influenza season demonstrating the effect that can occur when a more virulent strain is circulating. In a pandemic situation, the mortality rate may be significantly higher.

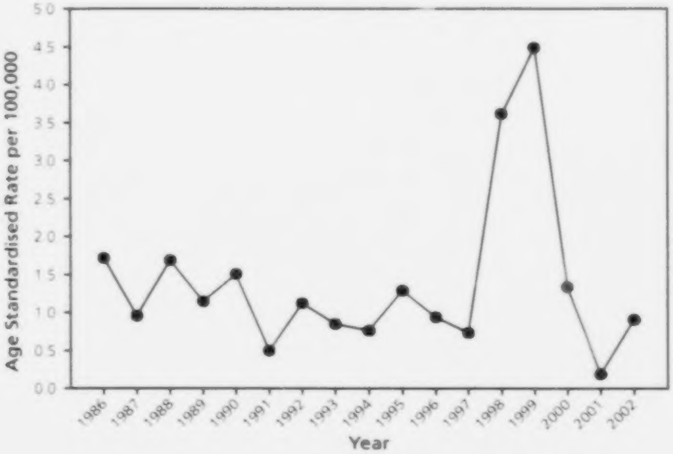


Figure 3: Age specific rate per 100,000 population of clinically diagnosed influenza in Alberta 2002 and 2003

In general, influenza affects the very young and the very old. However, this general bi-modal pattern can shift as seen in the differences in age distribution between 2002 and 2003. Young children (age < 2) are more likely to present to the emergency department.

Older individuals are more likely to be affected by influenza-like-illness (ILI), particularly if they are residents of nursing homes. As a result, the need to ensure high influenza vaccine coverage is clearly evident.

In pandemic periods, adults younger than 65 years have accounted for 50 per cent of the deaths. Influenza pandemic examples include:

- 1918 – 1919 (A/H1N1), nearly half of the influenza-related deaths occurred in the 20 – 40 year olds.
- 1968 – 1969 (A/H3N2), most of the deaths occurred in adults 45 – 65 years old (half of them were previously healthy and without any detectable co-morbid illness).
- 1957 – 1958 (A/H2N2), a large proportion of influenza-related deaths occurred among persons younger than 65 years.

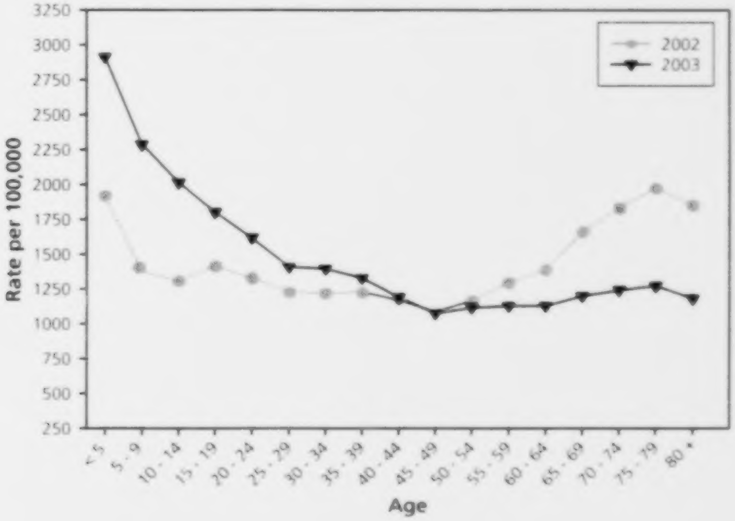
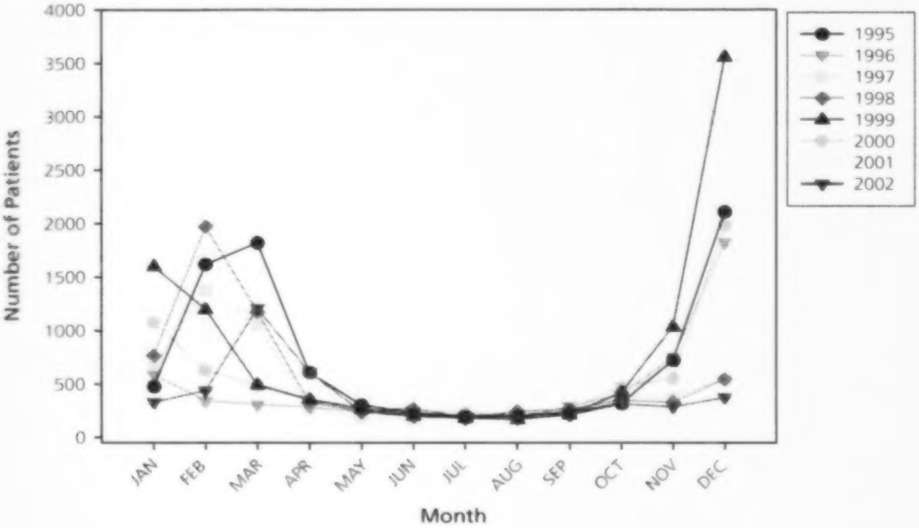


Figure 4: Number of patients seen in Alberta emergency departments by month 1995 – 2002

Each year, during influenza season, there are significant excess hospitalizations, physicians visits and emergency department visits rates (as in the graph below) for influenza associated respiratory illnesses, which have a substantial effect on an already strained system.



7. For more information

The following are good community resources for questions about influenza:

Health Link Alberta
Edmonton, call 408-LINK (5465)
Calgary, call 943-LINK (5465)
Or, outside the Edmonton and Calgary local calling areas,
call toll-free 1-866-408-LINK (5465)

Public Health Centres (See Appendix D)
(Monday to Friday, daytime hours), or **physicians or pharmacists**

Serious influenza outbreak in a community
Refer to television and/or radio broadcasts, or visit: www.health.gov.ab.ca for current information.

II.

INFLUENZA PREVENTION AND SELF-CARE

1. Annual immunization

Immunization is the best way to avoid contracting or to lessen the severity of influenza.

The influenza virus is always changing (antigenic drift); therefore, a new vaccine is needed each year. As well, effects of the vaccine begin to wear off after six months or even sooner in those with weaker immune systems. The WHO Global Influenza Surveillance Network monitors influenza viruses circulating in humans. Each year WHO recommends a vaccine that targets the three major viral subtypes; two influenza A and one influenza B, which scientists predict will be the likely strains to circulate in the next influenza season. Vaccines should be administered as outlined in the annual National Advisory Committee on Immunization (NACI) statement (refer to the Health Canada website www.hc-sc.gc.ca) and the Alberta Health and Wellness Program annual influenza statement (www.health.gov.ca)

The best time to be immunized is during October and the first half of November — just before the influenza season. This is because it takes about two weeks for the influenza vaccine to become fully effective. However, it is not too late to get the influenza vaccine once influenza has arrived in the community.

Influenza vaccine is 70 – 90 per cent effective in young, healthy people and protection lasts approximately six months. When a person's immune system is weakened, the vaccine is not as effective and doesn't last as long. However, if these people get immunized and become infected with the influenza virus, the illness will likely be less severe.

Since the strains of virus used in the vaccine are chosen six to nine months before a particular influenza season, there is a slight chance the circulating strain may change before the influenza season actually starts. The effectiveness of the vaccine depends on how closely the three strains in the vaccine match the strain(s) circulating in the community. The vaccine will not protect people against other respiratory illnesses.

1.1 Who should receive influenza vaccine?

It is most important that individuals at risk of developing serious complications from influenza get the influenza vaccine. Each year Alberta Health and Wellness, Provincial Health Office provides a statement on publicly funded influenza vaccine eligibility. Eligibility criteria may change based on clinical and epidemiological evidence/outcomes in each influenza season (refer to www.health.gov.ca or the regional public health program).

The following are generally people who are eligible for vaccination through the Government of Alberta annual immunization program.

a) People at high risk for influenza-related complications include:
  - healthy children aged six to 23 months, since they are at increased risk of influenza-associated hospitalization compared to older children and young adults,
  - adults and children with chronic pulmonary disorders and cardiac disorders severe enough to require regular hospital or medical care,
  - people of any age who reside in nursing homes, lodges, or chronic care facilities,
  - people 65 years of age and older,
  - adults and children with chronic conditions such as:
    - diabetes mellitus and other metabolic diseases,
    - cancer,
    - renal disease,
    - anemia,
    - hemoglobinopathy,
    - immunodeficiency, immunosuppression, and

    - HIV-positive (HIV-positive persons may receive the influenza vaccine without a specific recommendation from their physician. It is recognized that vaccine effectiveness may not be optimal, especially in persons with low CD4 and T-lymphocyte cell counts. There is evidence that a second dose of vaccine does not improve their immune response).
- pregnant women who are at high risk for influenza-related complications,
- children and adolescents (six months to 18 years) with chronic conditions treated for long periods with acetylsalicylic acid (ASA),
- individuals who are living in chronically disadvantaged situations (i.e. homeless shelters),
- people at high risk for influenza complications who are traveling to destinations where influenza is likely to be circulating. (Note: public health centres can be contacted for information on such destinations.), and
- workers in direct contact with poultry infected with avian influenza during culling operations.

b) People capable of transmitting influenza to those at high risk:

- Health-care workers (HCW) and other personnel who have significant contact with those at high risk including:
    - all employees of health-care facilities,
    - all staff in lodges, and
    - personnel in other settings providing health services to, and having significant contact with, individuals at high risk (e.g. home care personnel, speech therapists, public health nurses, physicians and their office staff).

  HCWs involved in direct patient care should consider it their responsibility to provide the highest standard of care, which includes receiving influenza immunization annually. Not only does this immunization protect their patients, it protects them and their families.

- ALL household contacts of persons at high risk for influenza-related complications currently eligible for the influenza vaccine. Included in this group are household contacts of children less than 24 months of age.

- Pregnant women in their third trimester if they are expected to deliver during influenza season, as they will become household contacts of their newborn.
- Those providing **regular** childcare to children less than 24 months of age, whether in or out of the home.

The vaccine is not effective for children under the age of six months. Children nine years of age and under, who have never been immunized need two injections, four weeks apart, in order to build a strong immune response.

Not-at risk individuals can receive the vaccine for a fee. Some employers offer the vaccine to their staff. Health-care professionals in occupational health settings are encouraged to involve public health personnel in the workplace, advertise clinics, facilitate reimbursement and support influenza-related research.

1.2 Who should **not** receive the influenza vaccine?

The following individuals should not received influenza vaccine:

- People who are **severely allergic to eggs**, as viruses used in making the vaccine are grown in eggs.
- People with severe allergies to a component of the vaccine.
- Individuals who have had a severe reaction to a previous influenza immunization.
- Children under six months of age.
- People with an acute febrile illness should not usually be immunized until their symptoms have abated.

1.3 Antiviral prophylaxis

If a person is at risk for serious complications from influenza and cannot be immunized, they may be prescribed an antiviral drug, amantadine (e.g. Symmetrel®) or oseltamivir (e.g. Tamiflu®), to give them some protection during the influenza season. Antiviral drugs can stop or slow the action of viruses. Consideration is given to the person's medical problems, medications, and possible side effects to the antiviral before it is prescribed. (For more information about antiviral medications, refer to the annual NACI statement by visiting: www.hc-sc.gc.ca)

Antiviral medication may also be prescribed for:

a) people at high risk even though they were immunized, to provide extra protection,

b) people at high risk who were immunized after the influenza virus was present in the community and may need to be protected for the two weeks required for a response to the vaccine,

c) contacts of high risk people, who have not been immunized and

d) people at high risk if there is an outbreak and the circulating strain proves to be different from the vaccine strains.

1.4 Influenza vaccine reactions

Some people believe they will contract influenza from the influenza vaccine. This is not possible because the virus in the vaccine has been killed.

The most common reaction to the influenza vaccine is some redness and soreness at the injection site. This usually resolves in two days. Some people may develop a fever, tiredness and aching after six or 12 hours. This may last for a day or two. More serious reactions are rare. The benefits and risks of this vaccine should be discussed with the vaccine provider (e.g. public health nurse, physician) as a part of the informed consent process.

Researchers are continually working to improve the effectiveness of influenza vaccines and to develop easier routes for its administration.

1.5 Pneumococcal vaccine

Pneumococcal polysaccharide vaccine is a vaccine protecting against 23 strains of bacteria that most often cause pneumonia following influenza. The Government of Alberta provides it free of charge to those people who are at risk. These include:

a) persons 65 years and older;

b) residents in long-term care facilities;

c) children two years and older, and adults who have underlying diseases including:

- heart failure,
- chronic lung disease (not asthma),
- kidney disease,

- diabetes,
- chronic liver disease,
- alcoholism,
- sickle cell disease,
- chronic cerebral spinal fluid leak,
- spleen problems,
- diseases that weaken the immune system such as cancer and HIV/AIDS,
- cochlear implants,
- nephrotic syndrome
- Hodgkin's disease, and
- lymphoma or anyone undergoing immunoablative therapy.

Most people need the pneumococcal vaccine only once. It can be given at the same time as the influenza vaccine.

It is recommended that people with debilitating heart disease, transplants, nephrotic syndrome, kidney failure, sickle cell disease, diseases or treatments that weaken the immune system, and people without a spleen have another immunization in five years if they are older than 10 years and in three years if they are 10 years old or under.

Beginning September 2002, pneumococcal conjugate vaccine, protecting against seven strains of streptococcal pneumoniae, was included in the routine immunization of infants.

1.6 Where to get influenza or pneumococcal vaccine

To receive influenza vaccine, which is required each fall, call one of the local public health centres to make an appointment (refer to Appendix D, or a regional health authority website for listings) or to find out if they are holding "influenza immunization drop-in clinics" in seniors' residences, etc. Pneumococcal vaccine, which is usually given to an individual one time, may be obtained at any time of the year.

Many physicians provide the influenza vaccine to their patients and some pharmacies provide it to their customers.

Everyone should be encouraged to keep a record of influenza and pneumococcal immunizations and take this information with them to medical and immunization appointments.

2. Hand washing

In addition to immunization, the single most important step to prevent influenza is frequent hand washing.

Frequent hand washing is very important, especially after being in contact with someone who has a respiratory infection, or with children, who are the major disseminators of the virus. Hands should be kept away from the eyes, nose and mouth as the virus enters the body through these mucus membranes.

Good hand hygiene techniques include washing hands with soap and water, or using an alcohol-based hand sanitizer (hand rub).

2.1 Proper hand-washing technique

- Wet hands with warm, running water and apply liquid or clean bar soap. Lather well.
- Rub hands vigorously together for at least 15 seconds.
- Scrub all surfaces, including the backs of the hands, wrists, between fingers and under fingernails.
- Rinse hands under running water.
- Dry hands with a clean or disposable towel.

If using a public restroom, leave the water running after rinsing then use a paper towel to turn off the faucet to avoid further contact with the taps.

Regular soap is fine. It is not necessary to use antibacterial soap.

Liquid hand-wash products should be stored in closed containers or containers that are washed and dried before filling. To prevent bacterial contamination, do not top-up partially empty containers.

Encourage parents and other adults (e.g. teachers, day-care providers, etc.) to get children into the habit of proper and frequent hand washing through teaching by example. Washing their hands with their children, supervising their hand washing, and placing hand-washing reminders at children's eye level (e.g. a chart by the bathroom sink for children to mark every time they wash their hands), can assist the process.

2.2 Proper use of alcohol-based hand rub

Alcohol-based hand rubs — which do not require use of water — are an excellent alternative to hand washing, particularly when soap and water are not available. They can be purchased in a pharmacy in a variety of container sizes, including a purse-size. They are actually more effective than hand washing in killing bacteria and viruses. Commercially prepared hand rubs contain ingredients that help prevent skin dryness. In fact, use of these products can result in less skin dryness and irritation than hand-washing. However, not all hand rubs are created equal. Some "waterless" hand rubs don't contain alcohol. **Only the alcohol-based products should be used.**

To effectively use an alcohol-based hand rub:

- read the label for dosing instructions; apply it to the palm of the hand. (Ensure enough product is used to cover all surfaces),
- rub the hands together, covering all surfaces, including fingers and wrists,
- rub into hands until dry (approximately 15 – 25 seconds), and
- if the hands are visibly dirty, wash with soap and water rather than a rub. **Hand rubs are not effective if hands are soiled.**

Older children and adolescents can use alcohol-based hand rubs. Younger children can use them, too — with an adult's help. Caution adults to make sure the rub has completely dried before the child touches anything (to avoid ingestion of alcohol from hand-to-mouth contact), and to store the container safely away after use.

2.3 When to wash hands

BEFORE:

- preparing, handling, serving or eating food, and before feeding others.
- brushing or flossing teeth.
- inserting or removing contact lenses.
- and after treating wounds or cuts.

AFTER:

- contact with a person with influenza or their immediate environment.
- using the toilet, helping a child use the toilet, or changing a diaper.
- blowing nose or wiping a child's nose.

- coughing or sneezing.
- handling garbage.
- playing with toys shared with other children.

Good hand hygiene is especially important for children who attend day care. Suggest that parents protect their children's health by:

- making sure their day-care provider promotes sound hygiene, including frequent hand washing or supervised use of alcohol-based hand rubs;
- asking whether the children are required to clean their hands several times a day — not just before meals;
- making sure the sink is low enough for children to use, or that it has a stool underneath so that children can reach it; and
- having soap and paper towels near the sink.

Refer to the *Do Bugs Need Drugs Program* (www.dobugsneeddrugs.org) for school-related teaching materials about hand washing.

3. Respiratory etiquette

- Use disposable tissues for wiping noses and dispose tissues promptly after use into a waste container.
- Cover nose and mouth when sneezing and coughing.
- Use hand washing/hand antisepsis after coughing, sneezing or using tissues.
- Keep hands away from the mucous membranes of the eyes, nose, and mouth.

4. Other ways to minimize influenza transmission

In addition to immunization, proper hand washing, and respiratory etiquette remind people to:

- avoid large crowds, if possible, when the influenza season is at its peak.
- not share eating utensils or drinks.
- avoid visiting people who have influenza unless it is absolutely necessary. If it is necessary, suggest standing one metre away from an infected person to avoid contact with droplets containing the influenza virus.

- keep personal items of someone with influenza, such as towels, separate from the rest of the family, and to clean surfaces around the ill person, such as bathroom/kitchen sinks, taps and counters, frequently, with a detergent cleaner.
- Try not to shake the bedding or other linens. Clothes and linens can be washed in the usual way. No special handling of garbage is needed.

5. Caring for oneself

The immune system can be strengthened through physical and emotional wellbeing. There are many examples of how this can be achieved. Encourage people to:

- drink plenty of water to keep the airways moist and able to cleanse the system of unwanted material, and
- refrain from smoking for general lung and airway health. Those who smoke should take steps to quit. For information about smoking cessation call, The Alberta Alcohol and Drug Abuse Commission (AADAC) Smoking Cessation Helpline: 1-866-332-2322 or www.aadac.com.

Chronic stress decreases the immune response following influenza immunization in older adults. However, a number of lifestyle factors are known to be associated with strengthening their immune system:

- regular, vigorous exercise,
- daily multivitamin intake,
- lower perceived stress,
- greater optimism, and
- social activity.

Influenza-like-illness (ILI) is most often reported by shift workers, compared to day-workers. Perceived job demands (stress) and to a lesser degree, sleep quality and fatigue increase the likelihood of shift workers getting influenza.

Those with chronic illness(es) face special challenges in caring for themselves. People with chronic condition(s) are their own principal caregivers and health-care professionals — both in primary and specialty care — should be consultants in supporting them in this role. This partnership is facilitated by:

- health-care providers and individuals collaborating or making decisions together. The professionals are experts about disease, and individuals are experts about their own lives. Those with chronic illness should let their health-care providers know how they experience their situation and what they need. Similarly, health-care providers can encourage questions in this regard, and
- health-care providers helping those with chronic illness(es), to develop problem-solving skills. Education has shifted from a person's knowledge of the disease and its treatment to increasing their confidence and skills in managing their condition.

Science is constantly finding better ways for people to deal with chronic illnesses. Those with chronic illness can better care for themselves by learning about disease conditions from their health-care team, from recommended resources and from others living with similar conditions.

6. Planning ahead

Encourage each person to spend time thinking about what they would do and need if they contracted influenza.

This is particularly important for those who live alone, are single parents of young children, or are caring for others especially someone with a disability of a frail adult. Some areas to consider include:

- having enough fluids (juices, soups, etc.) on hand to last for one to two weeks.
- having enough basic household items (e.g., tissues) to last for one or two weeks.
- having acetaminophen (e.g., Tylenol®) or ibuprofen (e.g., Motrin®) and a thermometer in the medicine cabinet. It is also important to know how to use/read a thermometer correctly. Asking for help is encouraged.
- thinking of someone who could be called upon for help if the main care provider(s) became very ill with influenza. Prepare these people in advance by discussing these possibilities.
- thinking of someone who could be called upon to care for children if their school or daycare was closed because of a serious outbreak of influenza, and the care provider(s) was/were required to work. Prepare

these people in advance by discussing these possibilities. If no one is readily evident, the local public health centre or family/social services may be consulted regarding what is available in the community to help with these difficulties (refer to Appendix D, or a regional health authority website for listings). Employers may also be approached about alternate work arrangements.

Health-care professionals working in community or occupational settings should encourage employers to develop contingency plans for dealing with high rates of illness that will support employees while still maintaining services (e.g. working at home, flexible work hours).

III.

MANAGING THE ILLNESS: MESSAGES FOR ADULTS

1. Is it influenza?

The most prominent characteristics of influenza are:

- sudden appearance of a fever 38°C* (100.4°F) or more,
- dry cough,
- aching in the body, especially in the head and lower back and legs, and
- feeling extremely weak and tired, and not wanting to get out of bed.

Other symptoms can be:

- chills,
- aching behind the eyes,
- loss of appetite,
- a sore throat, and
- a runny, stuffy nose.

Refer to Appendix C for a comparative chart.

* For people older than 75 years, the temperature may be lower e.g. 37.2°C (99°F). Older adults may also experience vomiting, diarrhea or abdominal pain.

If an individual has influenza, they can expect:

- Day 1– 3: Sudden appearance of fever, headache, muscle pain and weakness. They may also have dry cough, sore throat and a stuffed nose but the first symptoms are usually more severe.
- Day 4: Fever and muscle aches decrease. Hoarseness, dry or sore throat, cough and possible mild chest discomfort become more noticeable.
- Day 8: Symptoms decrease. Cough and tiredness may last one to two weeks or more.

People can spread the virus for up to five days or more, beginning from the day before they have the first symptoms of the illness.

2. Self-care recommendations

2.1 General measures

- **Rest** — feeling of weakness and tiredness will probably continue until the body's temperature returns to normal (approximately three days). Resting provides comfort and allows the body to use its energy to fight the infection. Avoid contact with others while the infection is contagious (five days after the first symptom appears), if possible.
- **Drink plenty of fluids** — extra fluids are needed to replace those lost because of the fever (sweating). If the urine is dark, increase fluid consumption. Liquids, especially warm ones like chicken soup or hot lemonade, help loosen mucus, soothe sore throats, and break up coughing spells. Recommend drinking a glass of juice/water or an equal amount of some other fluid (preferably without caffeine) every hour while awake.
- **Gargle** — with a glass of warm water containing half a teaspoon of salt several times a day to ease a sore throat. Sugarless, hard candy also helps.
- **Use salt water (saline) or warm tap water nose drops**— (one to two drops) or spray that contains saline but no medication, three to four times a day to help soothe nasal passages or clear nasal congestion. Discourage excessively hard nose blowing when it is conjested, as this can contribute to the development of ear infections. Using disposable tissues and putting them in the garbage immediately, helps to prevent the spread of infection. Petroleum jelly under the nose can protect it from irritation. **Frequent hand washing is encouraged.**

Homemade Saline Nose Drops: Add ½ tsp. salt to 8 oz. boiled, cooled water, in a clean bottle/container. Use a clean dropper and make a fresh solution everyday.

Salinex® is a commercial saline nose drop product. Lubricating nasal mist or gels have also been particularly effective for soothing nasal passages (e.g. Secaris®, Rhinaris®).

- **Use a humidifier or steam** — to help loosen secretions and keep mucus membranes from drying out. Cool mist is preferred over warm as it is safer (no scalds from spills). However, there is no research to support one as more effective than the other.

  Ensure the humidifier is cleaned daily to minimize mold blowing in the air. For specific cleaning instructions, consult the product information. General instructions: clean with hot water (add one part bleach to 10 parts water), and scrub the surface with a cloth or bottlebrush to get into tight corners. Rinse well with hot water.
- **Do not smoke/avoid second-hand smoke.**
- **Use a hot water bottle or heating pad** — to help relieve muscle pain as long as the fever is under control. Epsom salts (one cup) in a warm bath may also be soothing.
- **Call someone for assistance** — especially those who are struggling with illness while living alone, are single parents of young children, or are caring for others such as a frail or disabled adult.
- **Address fear and anxiety** — managing illness can be stressful. Individuals expressing concern or anxiety should be encouraged to talk about their feelings with friends and family. Connecting with others by phone or email may help reduce lonliness. Refer to Appendix F: *Dealing with Stress or Feelings of Fear Because of Influenza*.

2.2 Over-the-counter (non-prescription) medications

Studies show most people buy over-the-counter (OTC) medications to treat their symptoms when they have influenza. They usually buy an OTC medication that contains several active ingredients. People should be encouraged to consult their pharmacist regarding self-care product selection, dosing questions, potential contraindications or side effects, if they have not already discussed this with their physician.

Note: Older people may become much more sensitive to medications in general and may experience more side effects, especially to the nervous system (e.g. confusion). Recommend limiting the number of medications taken at one time. This includes both prescription and OTC drugs.

2.2.1 Guidelines for the use of over-the-counter medications

- It is better to buy a remedy that treats only one symptom. This prevents taking in substances that are doing nothing, or that may trigger an adverse reaction. Read the label to be sure the ingredient treats the symptom present and/or consult with the pharmacist.
- If taking more than one medicine at a time, check the labels to be sure there is no doubling of ingredients e.g., unknowingly taking two medicines that both contain acetaminophen.
- Extra strength remedies contain a higher dose of the ingredient. Try the regular strength product first (it may work fine and not have the same risk of side effects).
- It is important to follow dosing instructions on the label. Do not take more than the recommended dose or use the medicine for more than the recommended time. Note any possible side effects or interactions with other drugs or health conditions. Check the container for an expiration date and take outdated medications to a pharmacy for disposal.
- Consult a physician or pharmacist regarding possible interactions with chronic conditions or other medications being taken.
- Keep all medications out of the reach of children.

2.2.2 Treating specific symptoms with over-the-counter medications

- **Muscle pain and fever** — Take acetaminophen (e.g., Tylenol® regular strength), one or two tablets every four to six hours to a maximum of five doses per day to bring down fever and ease muscle pain (recommended for older adults). An alternative medication for pain and fever is ibuprofen (e.g., Motrin®) every six to eight hours to a maximum of four doses a day (unless otherwise advised by a doctor).

  CHILDREN UNDER 18 YEARS OF AGE SHOULD NOT TAKE ACETYLSALICYLIC ACID (ASA) OR ANY PRODUCTS CONTAINING ASA (e.g., Aspirin®). The combination of influenza and ASA in this age group has been known to cause Reye's syndrome, a very serious condition affecting the nervous system and liver.

  Pain relievers may provide some relief, but they won't make the symptoms go away and they may have side effects e.g., ibuprofen can irritate the stomach, and acetaminophen, if taken for a long time or in high doses, can affect the liver and kidneys.

- **Cough** — can be helpful if it gets rid of mucus. However, if a dry cough prevents sleep/rest, or causes chest discomfort, a cough medication containing dextromethorphan (DM), is safe and effective. Delsym® and Benylin — Dry Cough® are two products that contain DM without other ingredients.
- **Nasal congestion** — decongestants help shrink swollen blood vessels in the nose. There are two kinds — oral medications and nose drops/sprays. Nose drops/sprays act in minutes and have fewer side effects than oral medications. However, after two or three days, the body can adjust to them and rebound congestion can occur, making symptoms worse. Oxymetazoline, phenylephrine and xylometazoline are nose drops/sprays. If nasal congestion persists after three days, consider switching to an oral medication such as pseudoephedrine as an oral decongestant. These take a half hour to work. Decongestants may cause dry mouth, sleep disturbances, rapid heartbeat and other side effects. They should not be taken by individuals with chronic health problems and/or those who are taking other medications, without first consulting a health-care provider.
- **Sore throat** — some medications work by numbing the throat. Of these, dyclonine (e.g. Sucrets®) works the best. Others are benzocaine, hexylreorcinol, menthol and phenol. These are lozenges or throat sprays. Other lozenges act by soothing the throat. They may contain honey, herbs or pectin.

2.2.3 Complementary medicines

Many Canadians use some form of complementary medicine to support their health. Research has been conducted on some of these therapies and the influenza virus.

The following complementary medicines may help decrease the length and/or severity of influenza illness:

- Vitamins E and C,
- COLD-fX®, a ginseng-based remedy developed in Edmonton,
- An Echinacea compound herbal tea preparation (Echinacea Plus®),
- A standardized extract of elderberry (Sambucol®),
- Quercetin, a bioflavflavenoid, which occurs naturally in fruits, vegetables, nuts, seeds, red wine, tea and flowers,

- Bifidobacterium breve, bacteria which occur naturally in the intestinal tract and in yogurt,
- Homeopathic Oscillococcinum,
- Gingyo-San, a traditional Chinese herbal medicine, and
- Kan Jang (standardized extract of Andrographis paniculata).

The same precautions taken with OTC medication should be taken with complementary medicines. Health-care providers should be informed about all complementary medications patients/clients are taking, and should advise on potential disease/drug interactions, contraindications and adverse effects with these products. (Refer to Appendix E).

3. When to seek medical care for an adult

Generally, people begin to feel better after their temperature returns to normal (approximately three days), and are ready to return to their normal activities/work in about a week. It is common for tiredness and a cough to linger for several more weeks. However, suffering with influenza may necessitate consultation with a physician.

The primary concerns in adults with influenza are:

- Compromised respiratory function,
- Dehydration,
- Sepsis: bacteria in the blood system, which can lead to circulatory or neurological compromise.

These complications are more likely in adults with chronic health problems requiring regular medical attention such as respiratory or cardiac conditions, diabetes, or who are immunosuppressed due to advanced age, medications or other illnesses.

If an adult is suffering with influenza, they should be advised to seek medical care if they have:

- a heart or lung disease,
- any other chronic condition (e.g. diabetes) that requires regular medical attention,
- an illness, or are on treatments or medications affecting the immune system, or
- if they are frail.

These people may require changes to their usual medical management routine, and/or extra help in treating influenza, and/or preventing complications e.g. antiviral medications. Antiviral medications must be administered within 48 hours of the first symptoms; therefore, a person should be counselled to call a physician as soon as possible.

If an adult is suffering with influenza, they should be advised to seek IMMEDIATE MEDICAL ATTENTION IF THEY EXPERIENCE ANY ONE OF THE FOLLOWING SYMPTOMS:

- shortness of breath while resting or doing very little,
- difficult or painful breathing,
- coughing up bloody sputum,
- wheezing,
- chest pain,
- a fever persisting for three or four days with no improvement or worsening,
- starting to feel better, then suddenly developing a high fever and starting to feel sick again,
- noticing extreme drowsiness and difficulty being woken, or if disoriented or confused,
- extreme ear pain,
- being newly unable to function (if an independent elderly person) and
- persistent vomiting, if elderly (two to three times in 24 hours)

Under the above circumstances, calling a doctor as soon as possible is important in order to prevent worsening of conditions.

3.1 Prescribed medications

3.1.1 Antibiotics

Antibiotics are not prescribed for uncomplicated influenza, as they have no benefit for viral infections. However, antibiotics may be prescribed for complications of influenza such as pneumonia or ear infections.

3.1.2 Antiviral medications

Antiviral medication for influenza must be started within 48 hours of the first symptoms — the sooner, the better.

Amantadine (e.g., Symmetrel®), the oldest antiviral, works by stopping the virus from multiplying and releasing infectious material, and can lessen the length of time a person has influenza, and its severity. Amantadine only works against influenza A viruses. It comes in capsule or syrup form and is usually given for five days. Unfortunately, some viruses have become resistant to amantadine. As well, it cannot be given with certain medications (triamterene and/or hydrochlorothiazide, quinine, quinidine and trimethoprim-sulfamethoxazole; caution with CNS stimulants and anticholinergics) or to people with certain health problems (e.g. renal insufficiency, seizure disorders, some psychiatric illnesses). Possible side effects that may go away during treatment include nausea, blurred vision, dizziness or lightheadedness, difficulty sleeping, decreased appetite, anxiety, confusion, dry mouth, headache or constipation. It must be used cautiously in older people because it can cause more serious side effects, especially on the nervous system. It can be given to children over the age of one year.

Oseltamivir (e.g., Tamiflu®) and zanamivir (e.g., Relenza®), two newer drugs, block the enzyme that allows the virus to be released from infected cells. These are effective against both influenza A and influenza B. Zanamivir, which is inhaled, is used infrequently. Oseltamivir comes in capsule and suspension form and is usually given for five days. It can cause nausea, vomiting and dizziness, but these side effects may be lessened if taken with food. Oseltamivir can be given to children over the age of one year, for treating influenza.

4. Protecting others

Individuals with influenza should be encouraged to stay home from work/school/day care and away from public areas while infectious (five days from onset of symptoms), if possible. Those who must go to work, or leave home for medical care or other reasons, should be advised to protect others from being infected with the virus by practicing respiratory etiquette (refer to Section II.3).

IV.

MANAGING THE ILLNESS: MESSAGES RELATED TO CHILDREN

Influenza is more severe in children under five years. The highest rate of influenza-related serious illness in children occurs in the six to12 months group (after the mother's antibodies have waned). Although uncomplicated influenza in children may be similar to the disease in adults, there are some age related differences in infants and toddlers:

1. Unexplained fever can be the only symptom of the disease in infants.
2. A variety of central nervous system symptoms, such as seizures, may appear in as many as 20 per cent of infants. Children may also have symptoms suggestive of meningitis, e.g. headache, vomiting, irritability and photophobia.
3. Young children usually develop higher temperatures, frequently over 39.5°C (103.1°F).
4. Symptoms such as nausea, vomiting, diarrhea and abdominal pain are found in 40 to 50 per cent of children, mainly those three years old or younger.
5. Influenza viruses are an important precursor of croup, pneumonia and bronchitis in young children.
6. Otitis media and non-purulent conjunctivitis are more frequent in young ages.
7. Myositis is a frequent complication in young children, especially after infection with influenza B.

Note: Very young children and infants probably have symptoms similar to older children and adults, but do not know how to tell caregivers they have sore muscles or a headache. These children may be irritable and eat poorly. They sometimes develop a hoarse cry and barking cough (croup).

Children over five years and adolescents have the same symptoms as adults, the most common being fever, cough, headache, chills, and myalgia. The fever is usually between 38°C (100.4°F) - 40°C (104°F), and a second peak, without bacterial super-infection, may occur around the fourth day of illness. Backache, sore throat, conjunctival burning with watery eyes and epistaxis may be present, but gastrointestinal symptoms are infrequent.

1. Caring for children

Treat symptoms, if necessary:

- **Acetaminophen** 10 - 15 mg/kg every four to six hours up to five times a day is the preferred medication to treat fever and muscle pain (unless otherwise advised by a doctor). Advise taking the child's temperature before giving them medication for fever. (Refer to Appendix F: *How to Take a Temperature.*) A fever usually comes down one to two degrees in one and one half to two hours. Acetaminophen is effective for three and one half to four hours. Once it wears off the fever is expected to return.

  Ibuprofen 5 - 10 mg/kg every six to eight hours up to four times a day is a reasonable alternative to acetaminophen. It should not be used if a child is under four months of age, has a known decrease in kidney function, or is dehydrated. It is not necessary to wake a child to give him/her a medication for fever unless directed by a physician.

  CHILDREN UNDER 18 YEARS OF AGE SHOULD NOT TAKE ACETYLSALICYLIC ACID (ASA) OR ANY PRODUCTS CONTAINING ASA (e.g., Aspirin®). The combination of influenza and ASA in this age group has been known to cause Reye's syndrome, a very serious condition affecting the nervous system and liver. A pharmacist can provide advice on appropriate OTC medications for treating fever in children. Note: A fever is part of the normal process of fighting an infection. The temperature reading of a fever does not indicate the severity of the illness; the child's behaviour and overall appearance is generally the most important factor.

- **Dress the child in lightweight clothing** and keep the room temperature at 20°C. Removing extra blankets and clothing allows heat to leave the child's body. However, if the child becomes too cold, he/she will start shivering, which will produce more body heat.

- **Offer fluids** such as water or juice frequently, when the child is awake. Cool fluids or popsicles are helpful when the child has a fever. Warm, clear fluids such as chicken soup or hot lemonade will help the nose to drain, relax the airways, and soothe the throat. Chicken broth is not recommended for children less than 12 months because of the high sodium content in commercial products. Encourage more frequent breastfeeding.

  Although sponging with lukewarm water may help reduce the fever, it can make the child uncomfortable. Cool baths and alcohol baths and rubs are not recommended.
- **Allow the child to rest and stay at home** if possible for five days after the onset of symptoms, to assist in healing and to prevent the virus from spreading to other children.
- **Use salt-water (saline) nose drops** to treat nasal congestion and cough, especially for infants and toddlers, before eating or sleeping. Position the child with the head slightly back. Use a medicine dropper to put one to two drops in each nostril. Repeat four to five times per day. Throw away tissues as soon as the child's nose is wiped. Older children and teens can splash warm water into the nose while bending over a sink, wait one minute and then blow nose gently; blowing too hard can lead to earaches and nosebleeds. Repeat as necessary to clear nasal passages until breathing is easier. Apply small amount of petroleum jelly to the skin under the nose to protect from irritation. Teach the child to cover their mouth when coughing or sneezing and then to throw away the tissue. Wash hands often and teach children to do so as well.
- **Use a humidifier** to help loosen secretions and keep mucus membranes from drying out. Ensure that the humidifier is cleaned daily to minimize mold blowing in the air (refer to Section III. 2.2.1). Note: Humidifiers should not be used with asthmatic children.
- **Elevating the head of the child's bed**, reducing stimulation and involving the child in quiet activities may decrease coughing.
- **Cough suppressants** containing dextromethorphan (DM) may help a child over two years of age. Use only if the cough is painful or interrupting sleep. Cough suppressants should not be given to a child with a moist, productive cough, or to a child with asthma.
- **Decongestant sprays** may be used in children older than six months, and oral decongestants may be helpful with older children, if necessary. They may thicken secretions, and cause restlessness or a rapid heartbeat. Ask a pharmacist for help in selecting the right one.

- **Throat lozenges**, for children six years of age and older, may relieve a sore throat. They should not be given to younger children because of the risk of choking. Older children can gargle warm salt water. Gargle for 10 seconds, spit out the salt water, and repeat. This may be done four to five times/day.

2. When to seek medical care for a child

The primary concerns for children with influenza are:

- Respiratory compromise
- Dehydration
- Secondary bacterial infection
- Neurological complications

These complications are more common in very young infants and children with underlying chronic diseases (particular cardiac, respiratory, neurological or metabolic) or immunocompromise.

Because almost 100 per cent of children with influenza have fever, the presence or absence of fever as a sign of severe influenza is not helpful.

Parents/caregivers are advised to seek medical care for a child if they have the following symptoms of influenza — rapid onset of fever, cough, malaise, reduced appetite with or without vomiting AND ANY ONE OF THE FOLLOWING:

- are less than three months old,
- have a heart or lung disease, or any chronic illness requiring regular medical care; have a disease, or take drugs or treatments that affect the immune system; take acetylsalicylic acid (ASA) e.g., Aspirin® regularly for a medical condition,
- have a change in respiratory pattern with an increase in the respiratory rate and show signs of labored breathing,
- are very listless, with a loss of interest in most things (playing, watching TV, eating and drinking),
- are excessively irritable and inconsolable; i.e. he/she won't calm down with bottle or nursing, being held or rocked,
- have significantly reduced urine output (i.e. voiding less often than every six hours while awake; have a dry diaper more than three hours if younger than six months, or longer than six hours if six – 23 months old).
- look very ill and the parent/caregiver is worried.

3. When to take a child to hospital emergency and/or all 911

Parents/caregivers are advised to take a child to hospital emergency and/or call 911 if they:

- have severe trouble breathing (not caused by nasal congestion),
- have blue lips or hands, sudden pallor, or have cold legs up to their knees,
- have a full or sunken fontanel,
- are limp or unable to move,
- are excessively sleepy to the point of being difficult to arouse, or unresponsive,
- show signs of pain: headache and/or stiff neck especially if combined with fever and listlessness/photophobia,
- seem confused, and,
- have a seizure (convulsion/fit).

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A.

APPENDIX A
Alberta pandemic influenza self-care literature review

May, 2004

1. Introduction

This document is part of the Alberta Pandemic Influenza contingency planning process to guide the response to an influenza pandemic. It is part of the ongoing development of the self-care strategy for health-care professionals and the public during regular influenza season and pandemic.

This document provides:

- A review of the literature related to influenza self-care and methods of delivering influenza-related health-care services to guide continued planning.

2. Literature review

A preliminary search of English literature was conducted between November 2003 and January 2004, employing the following health literature databases:

- Medline 1975 — January 2004
- Healthstar/Ovid Healthstar 1975 — January 2004
- CINAHL 1982 — January 2004

The following search terms were used: "Influenza," "Influenza and Self-Care," "Self-Care," "Mental Health and Epidemic," "Mental Health and Pandemic" and " Mental Health and Disaster."

A. The need for an influenza self-care strategy — the public

Literature indicates self-care is the treatment of choice for influenza, and most individuals use the health-care system appropriately.

Although self-care is the norm, great variations exist among individuals. Analysis of the Ontario Health Survey (1994) found low-income respondents reported more health problems and more physician visits. However, there were people with no reported health problems at all income levels, who make frequent visits to the physician. The literature review for the survey notes that one health maintenance organization study found frequent mis-users were younger, reported more symptoms, had a greater belief in their own responsibility for their health, were more concerned about psychological symptoms which they rated as more serious and believed less in the physician's control of their health. Another study of 78 families in an urban medical emergency clinic found family stress related to morbidity and treatment response[1].

Literature pertaining to predictors of general health care utilization showed mixed and often contradictory findings, depending on the research design and instruments used. Generally, female gender, depression, positive attitude toward consultation and perceived poor health status have been associated with greater health care utilization, while marital status, education, employment status, knowledge about illness and self-care, and physical health have shown contradictory results. Literature on age suggests children and seniors use the health-care system the most.[2]

Literature indicates there are areas in which public understanding of influenza and its care could be enhanced:

- Most people use self-prescribed, multiple action over-the-counter (OTC) drugs.[3] Multiple action OTC medications are not recommended. Two deaths were reported in Scotland related to OTC medication use in the 1999-2000 influenza epidemic: one from haemorrhagic duodenitis induced by OTC ibuprofen, and another from the consequences of exceeding the recommended doses of paracetamol by combining doses of the generic product with proprietary flu-remedies to treat symptoms.

These occurred following a highly successful campaign to help reduce the stress on general practitioner and hospital services. Advice given was to take regular OTC analgesia, fluids and to stay home from work.[4]

- In an Ontario study of self-care knowledge and practices related to colds and influenza (1994), only 51.9 per cent of subjects knew viruses cause influenza and 35.7 per cent believed antibiotics cured influenza. Most (89 per cent) thought more people should know how to treat themselves, and 89 per cent would be satisfied if the physician gave advice instead of a prescription[3].
- A study of community dwelling adults aged 65 years and older in the United States found most subjects did not identify potential hazards associated with influenza. Researchers also suggested that identification of symptoms associated with influenza may be problematic for elders since symptoms of chronic illness, e.g. fatigue, may mask symptoms of other illnesses[5].
- A 1993 U.S. study of university undergraduates' knowledge of colds and influenza indicated that regardless of age, sex or year in school, these students were misinformed about key aspects of the diagnosis, treatment and prevention of upper respiratory infections[6].
- A parental survey of children, who presented to the emergency department of the Children's Hospital of Eastern Ontario following the launch of a publicly funded influenza immunization program for all residents of Ontario over the age of six months (2001), suggested education campaigns need to address parent's gaps in knowledge such as the belief that influenza manifests as gastrointestinal upset and children are not at risk of disease[7].
- A 1986 study of the treatment of minor illnesses, by university undergraduates in the United States, in which influenza was the third most commonly reported illness, indicated that when analyzed by illness, differences seem to lie in symptom and illness definition, not treatment. Researchers recommend education related to common illnesses at school and via the media with attention paid to diagnosis by laypersons who will either be treating themselves or dispensing advice to others. Symptoms of each illness would be discussed with particular attention paid to what constitutes a "serious" versus "non-serious" symptom.[8]
- Following a study in Israel (1994), regarding the use of health services for influenza-like symptoms, researchers suggested family physicians

need to address symptoms during patient examinations and reduce patient anxiety by discussing their significance[9].

- The National Advisory Committee on Immunization (NACI) *Statement on Influenza Vaccination for the 2003 – 2004 Season*, states that low rates of influenza immunization are due both to failure of the health-care system to offer the vaccine and to refusal by people who fear adverse reactions or mistakenly believe the vaccine is either ineffective or unnecessary, and educational efforts aimed at health-care workers and the public should address common concerns[10].
- Hand-washing education and practice have shown potential for decreasing rates of school absenteeism from influenza-like illness in lower grades. These efforts need to be regularly reinforced, and are most effective when incorporated into daily routine[11].
- An American study (1999) indicated only 40 per cent of patients with influenza sought consultations in a time frame appropriate for the administration of antiviral medications[12].
- In a study (1999) of Canadian children with respiratory tract infections, researchers suggest that educating parents to distinguish between important sentinel symptoms and unimportant signs and symptoms and the clinical courses that may occur with an illness, may diminish the frequency of inappropriate consultations and address parental concern. Increasing education related to fever was also recommended.[1]
- A 1997 survey of parents of children attending a pediatric clinic in the United Kingdom indicated parents perceive fever as being dangerous. They have a poor understanding of normal body temperature and fever. Temperature is not assessed accurately, and there is wide variation in the way fever is managed. Researchers conclude there is a need to provide education to change perceptions related to fever.[14]
- A study (1992) in Minneapolis, which was conducted to answer questions regarding the role of lay advisors in assisting elderly people with symptom evaluation, found that more than half consulted with a friend or family member about one or more of their symptoms, a response second only to taking medications. The researchers suggest strategies might be developed to assist people in evaluating which symptoms require professional treatment and what types of self-treatments are appropriate, and it may be especially appropriate for these strategies to target women.[15]

- Statistics Canada reported at least 3.3 million Canadians spent more than $1 billion in 1995 on some form of complementary or alternative medicine not covered by a health plan. In particular, women have been documented as frequent users of complementary or alternative therapies. In 2 separate studies, more than 50 per cent of general practitioners in Canada were shown to have referred their patients for complementary or alternate therapies[16]. Research is being conducted on the use of complementary medicines (e.g. Quercetin[17], Echinacea[18], Elderberry Extract[19], Cold Fx — a ginseng based cold remedy developed in Edmonton[20], Bifidobacterium breve[21], Homeopathic Oscillococcinum[22], Gingyo-San[23], Kan Jang[24]) in decreasing the severity and duration of influenza.

B. The need for an influenza self-care strategy — the health-care system

Influenza associated respiratory illnesses have a substantial effect, annually, on an already strained health-care system. For example, a study to track health care use and mortality over four influenza seasons (1995 - 96 to 1998 - 99) in Winnipeg, Manitoba, showed significant excess hospitalization, physician visit, and emergency room visit rates emerged for pneumonia, acute respiratory diseases and chronic lung disease, especially among children and adults aged 65 and older. Considerable excess mortality due to influenza and pneumonia and chronic lung disease among individuals aged 65 and over also emerged, particularly among nursing home residents. Researchers suggest efforts be made to increase immunization rates and health-care-services providers plan for increased health services utilization rates during influenza seasons.[25]

Health-care services utilization data, related to influenza in Alberta, are provided in the *Health-Care Provider Reference*, including:

- annual incidence (1986 - 2003),
- mortality rates (1986 - 2002),
- age specific rates per 100,000 population (2002 - 2003),
- emergency room visits (1995 - 2002) and
- pandemic influenza projections.

Influenza immunization, as a self-care measure, is important in the inter-pandemic period. A study of Alberta seniors, utilizing administrative data from April 1, 1999 to March 31, 2001 revealed an inverse relationship between utilization of influenza vaccination and community-acquired pneumonia. The per capita vaccination cost (about $10) was small in relation to the per capita cost of care for pneumonia (about $100).[26]

During the 2002-2003 influenza season in Alberta, 66.26 per cent of individuals 65 years of age and older were immunized against influenza. In long-term care settings, 90.2 per cent of the residents and 69.3 per cent of health-care workers received influenza immunization.

Pandemic influenza may have a different clinical presentation and course, depending on the nature of the virus. During a pandemic, influenza vaccine may be unavailable or in limited supply. Antiviral medication will not be available in sufficient quantities. Specific strategies to deal with supply and distribution of influenza vaccine and antiviral medications during a pandemic influenza have been developed by the Vaccine and Antiviral Subcommittees. Health Canada antiviral recommendations are undergoing change.

A Pittsburg study examined changes in patient perceptions of the influenza vaccine during the 2000/2001 influenza season, when there was an unprecedented, widespread and highly publicized delay in distribution of the vaccine. The delay in vaccine distribution had three consequences, modest in degree: 1) decreased immunization rates; 2) increased patient concerns about vaccine safety and 3) increased patient concerns about vaccine efficacy. Even among adults with good access to vaccine supplies, this suggests the need for clear messages regarding vaccine safety and efficacy along with availability reports during a pandemic influenza.[27]

Learning from SARS: Renewal of Public Health in Canada, a report of the National Advisory Committee on SARS and Public Health (2003), noted media should not downplay the risk of an infectious disease outbreak to public and stated the U.S. Centre for Disease Control "has a comprehensive crisis communications training program that bears close study and early adaptation by Canadian governments and institutions." The report indicated many respondents also discussed the significant psychosocial implications of Severe Acute Respiratory Syndrome (SARS) and relayed stories that illustrated the palpable fear among both health-care providers and public. Many who participated in interviews and focus groups suggested fear was engendered both by sensationalism of media coverage and inconsistent information coming from the provincial and municipal public health officials[28]. Mental Health Support Network of Canada developed information on dealing with stress or fear you might feel because of SARS, which could be adapted for use during a pandemic influenza[29] (See Appendix H).

C. Delivering influenza self-care

1. Effectiveness of community-based influenza and other self-care interventions

A study was conducted in 1994 to evaluate an Ontario Ministry of Health cold/influenza self-care public education campaign to reduce unnecessary patient visits to doctors. The campaign consisted of an information booklet delivered to every household in London, Ontario, newspaper ads and radio spots. The program ran during January – March 1994. Evaluation consisted of:

- Telephone surveys in London (experimental area) and Windsor (comparison area), before and during the campaign,
- telephone survey of London family practitioners during the campaign.

In addition, data was collected on the incidence of cold/influenza visits to three hospital emergency departments and a sample of family physicians' offices.[1]

The campaign evaluation showed limited effect. Message penetration was low. Only one-third of intervention site residents knew of the campaign or read the booklet, and readers had mixed interpretations of the message. Only two of ten questions showed increases in knowledge. Those that increased knowledge asked whether antibiotics cure colds and influenza. No changes were found for beliefs, attitudes, acquisition of new health practices or self-reported visits to the doctor[1]. There was a decrease in billings for visits because of cold and influenza symptoms in the two months after the campaign was introduced in the intervention site. However, the effect of the campaign on billings could not be determined with certainty, because of limitations with the study.[2] The researchers observed:

- There was not strong evidence of a large number of inappropriate visits to physicians for the common cold/influenza prior to the campaign.
- Given most respondents practiced self-care, there would be little room for shifts in health practices.

- Where respondents in the intervention site had the correct information, the primary source was their physician, not the booklet.
- Surveys suggested the campaign missed the mark in not knowing the public's knowledge and health practices and in not involving the physicians to "buy into" the program.
- The campaign did not reflect state of the art health education models, which emphasize the "personalized approach".
- Utilization is lowest for family physicians and emergency rooms (20 per cent) compared to walk-in clinics and after-hour services (40 per cent). In the literature review, specifically targeted cold/influenza programs have shown success.
- Educational programs may need to be more selective and work more with health educators to ensure the at risk groups seek appropriate treatment.
- Attempts to change health practices of the minority of "worried well," which one study reports accounts for 17 per cent of the population (but represent 43 per cent of inappropriate doctors' visits), will be a challenge.[1]

The literature review for previously described Ontario research indicated providing information can produce new understanding. It suggests an education program should be perceived to be supported by a source personally known to the patient (e.g. physician or employer).[2] Mass communication campaigns in the form of electronic messages or print material have shown limited effectiveness in changing health practices. Self-care projects integrated into the health-care system and including support components, e.g. nurse counselors, telephone help lines, monthly newsletters, personalized health-risk appraisals, were more likely to find reductions in health service utilization rates. On the other hand, there is evidence it is patient response to the general philosophy and intention of reducing patient visits (Hawthorne effect), not educational materials, that affect the utilization rate. Algorithms in self-care materials may actually promote patient visits.[1]

The general self-care literature indicates self-care interventions have the intended effects at least some of the time. However, factors associated with achieving desired outcomes are less clear.[30]

Methodologies for evaluation of community health education studies are still evolving. There is an increased probability of an overall false negative finding. An important limiting factor for community intervention studies has been underestimating secular change (e.g. increased use of computers) occurring in comparison communities, leaving trials with insufficient power to detect changes beyond secular trends. Secondly, it is inherently difficult to measure differences in variables characterized by non-normal distributions or large variances such as utilization data. There are no "normal" patterns, and people do not use physicians' services evenly across time.[30]

Self-care education has been considered primarily as another means of cost containment. Some researchers conclude that supporting consumer decisions with timely and accurate information has potential to enhance quality of care, appropriateness of care and health outcomes. Unfortunately, these outcomes are typically not examined in most self-care information interventions.[31]

A study was conducted to assess effects of the Healthwise Communities Project (HCP), aimed at residents of four Idaho counties from May 1996 through December 1998. The intervention included distribution of the Healthwise Handbook, provision of a telephone advice line and a website. All of these products use a symptom-based approach. These self-care products provide decision support about how to handle a symptom or problem, delineate when it is appropriate to seek care or engage in self-care, and if self-care is called for, give instructions on the self-care measures to take. Preventive information is also included along with more general information, such as how to work in partnership with the physician.

Findings indicate community intervention increased use of self-care resources. Evidence suggests media campaigns and health-care practitioner endorsement significantly increased use of the manual. The most widely reported effect of using all self-care resources was to reduce worry. Users believe these products help them make better decisions regarding when to seek care and how to self-treat problems. Most believe using the self-care resources saved them from seeking unnecessary care. The HCP was associated with no changes in overall self-report utilization among adults and small decreases in overall reported utilization among children.[30]

In all three communities, the self-care resource most frequently used was self-care books, followed by telephone advice nurse and computers. Self-care resources were more often consulted for children's symptoms[12]. Older adults were much less likely to use a telephone advice nurse than younger adults[13]. The researchers suggest parents may be the most receptive to new self-care resources, and using strategies that do not rely on computers and reading, such as telephone advice lines, may be more effective for reaching low-education and low-literacy populations. Future studies should attempt to address barriers for rural areas.[32]

As web-based information sources grow, consumers need some assurance about legitimacy of the sponsor and accuracy and completeness of information. Endorsement of particular information sources from medical providers and reinforcing messages from media will likely enhance usage.[30]

Other community based studies:

- Brochures were developed on the seven self-limiting conditions (including influenza) representing the highest utilization in an ambulatory setting in a health maintenance organization in Minneapolis. The brochures outlined self-care remedies that could be used at home, special advice dealing with children's symptoms and information about when to call the doctor. The study showed minimal intervention, such as brochure distribution, can have a favourable, albeit minimal effect on medical services. For those symptoms where differences were found, the effect appeared to be short term. It is likely utilization reduction effects require ongoing and repetitive educational messages. Of those surveyed, 80 per cent reported they "liked" or "strongly liked" receiving the information and 75 per cent reported they kept them in a place where they could find them in their homes. Whether or not the brochures had a positive effect on the majority of those who stay home to deal with sickness, was not addressed.[31]
- Info-Sante, the Quebec telenursing service, is a telephone health line nursing service implemented in 1995 in every local community service center in 15 regional health authorities in Quebec. It was initiated to provide public with rapid access to health resources in the health-care system and thus limit recourse to inappropriate and more expensive services. It operates 24 hours a day, seven days a week. In 1997, a province-wide survey of the services, found most respondents were highly satisfied with the service; they followed nurses' advice and carried out self-care measures as recommended. Nursing intervention helped respondents feel self-reliant, that they could solve the same or similar problems should they occur in the future. The vast majority of respondents felt the call to Info-Sante was useful in finding a solution to their problems and claimed they would call again should another problem arise. The majority reported they would have turned to another type of resource if Info-Sante had not existed; one half would have used

emergency departments and one third would have consulted a doctor in private practice. Eighty percent of subjects reported they saved on average five hours of time, and 33 per cent reported they saved three hours in child-care costs. Sixty percent of those surveyed reported they avoided using transportation and 25 per cent reported avoiding losing time on the job. One third of subjects said they would have had to be accompanied to another resource.[34]

2. Effective influenza vaccine delivery

Most research on delivery of influenza related health services involves the provision of influenza vaccine.

Evidence related to delivery methods of immunization was first comprehensively summarized in 1994, and integrated into a document, *Immunization Delivery Methods: Practice Recommendations*[35], providing a base for public health policy development and assisting in the planning of resource allocation. It indicated that while significant improvements in influenza immunization coverage rates can result from many types of interventions, the greatest effects resulted from interventions aimed at hospitalized populations. Significant improvements in coverage levels also resulted from instituting a policy of standing orders in hospitals and clinics (system-oriented intervention). The only strong client oriented intervention study found intervention initiated by a physician (personal reminder) or a nurse (phone call) had double the coverage rate of a mailed letter. Evidence from studies of community-dwelling clinic-registered eligible individuals suggested that response is greatest when personalized mailed reminders or health-care practitioner-initiated telephone calls are used.[36]

Studies of pneumococcal vaccine delivery strategies also indicated high vaccination coverage rates can be reached when a client-or system-oriented intervention is targeted to hospitalized high-risk patients.[36]

A meta-analysis of effectiveness of interventions to increase influenza immunization rates among high-risk population groups was undertaken in 1998 to:

1) Analyze interventions effectiveness studies of immunization interventions designed to increase coverage levels in non-institutionalized elderly populations. Interventions were grouped as patient-focused, provider-focused and mixed models (patient, provider or delivery-system focused).

2) Assess the possibility of a "ceiling effect" in immunization programs.[37]

Analysis indicated the "best" intervention strategy will depend in large part on existing immunization rates in the target population. It provides some evidence that as rates increase, single strategy patient-focused interventions are likely to become less effective. Traditional provider reminder systems that have demonstrated effectiveness in low-coverage populations, may need to be enhanced. Mixed strategies, that combine changes in provider behaviors with organizational changes to increase the probability of patient-provider contact, during influenza season are likely to be more effective, especially in high coverage populations. Outreach is essential to reach clients who do not routinely visit a health clinic during influenza immunization season. Provider incentives and/or enhanced patient access through walk-in clinics, free vaccinations, satellite vaccination sites and scheduling of annual physician visits during the influenza season are possible strategies for increasing patient-provider contact.[37]

Some examples of current influenza immunization delivery research studies include:

- In 1999, Health Authority #5, Three Hills, Alberta, conducted a provider audit and feedback study (mixed-methods intervention) which increased influenza vaccine coverage for individuals 65 years of age and older to 65.6 per cent from 59.5 per cent in 1998.[38]
- A parental survey of children who presented to the emergency department of the Children's Hospital of Eastern Ontario following the launch of a publicly funded influenza immunization program for all residents of Ontario over the age of six months (2001), indicated that overall, 27 per cent of children had been immunized. Parents with children who were not immunized were more likely to believe influenza-like-illness was a side-effect of immunization, side-effects of immunization were worse than the illness itself, and influenza immunization would weaken the immune system. The primary reason for deciding against immunization was the belief their child was not at risk. Having a chronic illness and discussing immunization with a physician significantly influenced parental decisions to have their children immunized.[7]
- A study in Philadelphia in 1996, demonstrated a mailed educational brochure (addressing demonstrated reasons for immunization refusal) is more effective than a simple reminder in increasing immunization rates among inner city elderly patients.[39]

- A randomized, controlled trial of a senior-centre based program to increase influenza and pneumococcal immunization rates was conducted in 1996 in Seattle's ethnically diverse, low-income central area. The intervention group received educational brochures mailed with postage-paid reply cards to report immunization status, phone calls from senior volunteers to participants who are not immunized and computerized immunization tracking. Overall, the pneumococcal immunization rates increased from 41.7 per cent to 66.5 per cent among the intervention group and from 40.5 per cent to 50.9 per cent among the control group. Influenza immunization rate in the intervention group increased from 78.3 per cent to 88.2 per cent and decreased in the control group, from 83.0 per cent to 81.7 per cent.[40]
- A U.K. study, in a rural area in 2000, concluded that combining home-based, over-75 health checks with influenza immunization can improve uptake among older clients. However, this intervention is likely to be costly and its effect on immunization rates is modest. The difference in uptake is greater among those who do not routinely come forward for immunization. A more viable option may be to target these people.[41]

The *NACI Statement on Influenza Vaccination for the 2003 – 2004 Season* notes advice of a health-care provider is often a very important factor affecting whether a person is immunized or not. Most people at high risk are already under medical care and should be vaccinated during regular fall visits. The *Statement* outlines strategies to improve coverage.[10]

D. Educational materials for public

A 1997 study in Chicago examining patients' information needs from their own perspective found:

- Patients want more information than they typically receive during physician visits. After an outpatient visit, patients sought information from a variety of sources including friends, relatives, pharmacies, public libraries, and the Internet. The more information the patient understood, the more he/she felt in control. Patients also used the information to explain the outcome to their family members and friends.
- Patients would like information tailored to their own situation, e.g. lab results: how abnormal they are, what consequences are and how they can take steps to favorably affect results.

- Patients seek answers to questions at the time they formulate their questions, which was generally not during the encounter where they focus on processing the information they were being told.
- Although there are a variety of sources from which to get information, patients prefer to receive material their physician has endorsed as credible and applicable to their specific problem.
- Patients would like their physicians to recommend other sources of information e.g. journal articles, URL addresses or resource telephone numbers. Patients also seek ways of learning from other patients with similar medical conditions, such as through support groups or Internet-based-discussion groups.
- Patients would like to accumulate as much information as possible about their own medical and health problems.[42]

Desired characteristics of patient education materials include:

- Custom-tailored to the patient's situation.
- Well-organized, concise and practical.
- Printed so the patient can take the materials with them.
- Personal health data is included as a record of their health.
- Information that helps the patient formulate relevant questions.
- References for more information.[42]

Patients would like the physician to review the materials with them.[42]

Based on this research, the health-care group designed custom tailored patient hand-outs from their computer-based-patient-record system (EpicCare® by Epic Systems®). At the end of each encounter, the system prints an After Visit Summary document. (Clinicians felt accessing materials should be easy and seamless with the process of care.[42])

Research related to public education:

- A group of patient education studies focused on patient perceptions of the diagnosis or event and the education related to it found that knowledge received by patients was not fully satisfactory because it lacked areas of importance to the learner. Literature review for this article indicated educational programs must be culturally sensitive, economically focused and adjusted for the literacy level of diversified populations.[43]

- Researchers suggest there is a subgroup of young adults willing to use computer-assisted self-care as a first step in obtaining advice about upper respiratory infections (URIs). Early evaluations of health education using computers indicate they were generally well accepted by patients in community health centers. Computer-assisted, self-care on colds and influenza may be especially appropriate for a college age population as URIs are the second most common reason for visits to student health centres and this population is more familiar with computers than older cohorts. Weighing against acceptance of computer assisted self-care is students' reliance on their personal networks for health information and their unfamiliarity with the concepts of self-care.[6]
- A study (1996) conducted in Idaho found older consumers were much more involved in the purchase of OTC medications than young adults. The older group preferred an easy opening, non-child-resistant package. They were more concerned about print size on the package label, read labels completely, considered counselling by pharmacists more important, were more concerned about side effects, and purchased the majority of their medications from the pharmacy. Young adults were more concerned about child-resistant packaging, package size and generic availability. They predominantly purchased medications from the grocery store.[44]
- A study of patient package inserts (PPIs) for medications showed both readability and design need improvement.[45]
- One of the applications developed within the European Union funded projects TESEMED and TESEMED-II is a program for the information and continuous training of community pharmacists, with the aim to empower them as advisors of the citizens about self-medication topics. "Colds and Flu" is one of the programs. Each program includes three modules: a text version of the protocol and interactive scheme, plus an educational Encounter Simulator that provides protocol training for the pharmacist by means of simulated pharmacist-customer interactions.[46]
- In 1999, a literature review was conducted to examine the concept of video modeling, a technique that involves demonstration of desired behaviors, outcomes and attitudes through active visual representations. Three major uses were identified in clinical practice, one of which was teaching self-care practices. With self-care practices, several of the studies found there was an increase in desired behaviors in people whose educational programs included video modeling. There was no significant

effect on outcomes of care. The effect on long-term behavior changes was not investigated.[47]

- Written educational materials provide patients and families with information on how to manage symptoms and when to call for professional help. For people who cannot read, written materials are not useful. The United Nations reports that 16 per cent of people in Canada have low literacy skills. This situation is more prevalent among minority, low income and low education populations.[48]

  Simplification of language has been the principal technique used by health educations to make written materials understandable and useful for people with low literacy skills. Illustrations have also been used to increase interest and meaningfulness of written information. These are important and useful techniques, but they assume some ability to read and therefore cannot help those with very limited or no reading skills. Video and audiotapes are effective in communicating information to people with very low literacy skills, but listeners must remember the messages if they are to be used. This limits their usefulness to simple, important ideas. There is substantial literature showing the recall of oral medical instructions is often poor (29 – 72 per cent). The more information given orally, the poorer the recall.[48]

  An American study (1999) indicated people with low literacy skills can, with the help of pictograph, recall large amounts of medical information for significant periods of time. Subjects were 21 adult clients of an inner city job-training program who had less than fifth grade reading skills. The subjects had problems often associated with low literacy such as drug use, short attention spans, negative attitudes towards authority and limited mental abilities. Fever was one of the six symptoms addressed. The effect of pictographs on symptom management and patient quality of life remains to be studied.[48]

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www.health.gov.ab.ca

American Botanical Council
www.herbalgram.org

Ask NOAH About: Alternative (Complementary) Medicine:
www.noah-health.org

Do Bugs Need Drugs Program
www.dobugsneeddrugs.org

Health Link Alberta – for information and advice on health topics
www.healthlinkalberta.ca

The National Center for Complementary and Alternative Medicine (NCCAM) – general CAM information, ongoing NIH clinical trial, funding opportunities and CAM workshops.
www.nccam.nih.gov

B.

APPENDIX B
Self-care during pandemic influenza in Alberta

During a pandemic, the need for health services will exceed available resources like facilities, human resources and supplies/equipment. Alberta Health and Wellness, and each regional health authority have emergency response plans in place should a pandemic of influenza occur. Guidelines for self-care are considered an important component of health services contingency planning.

It is anticipated that implementation of the Self-Care Strategy, during inter-pandemic influenza seasons, will prepare the public to better cope during a pandemic. **Self-care messages during a pandemic may differ from inter-pandemic messages**, depending upon the nature of the new virus, how quickly it spreads and its effect on Alberta communities/health services. The need to manage stress along with feelings of fear for the public and health-care workers will be critical. Timely revisions to the self-care message may be required as influenza pandemic unfolds. For example:

- Symptoms and resulting illness management may be different depending on the nature of the pandemic influenza virus. For example, non-respiratory symptoms may be more common, the clinical course could be altered or a specific age group may be more affected.

- Influenza vaccine may initially be unavailable or may be in limited supply, and available only to priority groups. Public will need to know who is eligible to receive vaccine and on what basis priority groups have been chosen.
- Antiviral medication will not be available for all members of the public. Public will need to know who is eligible to receive antiviral medication, how priority groups have been chosen, how those who are eligible can access the medication and how it will be administered.
- Public may seek information on alternate means of boosting their immune system, defending themselves against the pandemic influenza virus.
- Public will need to know and understand what infection control and public health measures are being instituted throughout the community e.g. cancellation of public gatherings.
- As an influenza pandemic progresses, health-care services may be reorganized to meet the challenge. Messages may be needed regarding information lines, locations of triage sites and field hospitals, infection control measures at health service sites etc.
- Public will likely become anxious, fearful or panic as the influenza pandemic begins to take its toll on the health and well being of the community. Messages on caring for the mental health of oneself and family/friends will become paramount (refer to Appendix H: Mental Health During Pandemic Influenza in Alberta).

C.

APPENDIX C
Influenza facts[1]

Is it influenza, a cold or stomach flu?

SYMPTOMS/ DESCRIPTION	INFLUENZA	COMMON COLD	STOMACH FLU
Fever	Usually high	Sometimes	Rare
Chills, aches, pain	Frequent	Slight	Common
Loss of appetite	Sometimes	Sometimes	Common
Cough	Usual	Sometimes	Rare
Sore throat	Sometimes	Sometimes	Rare
Sniffles or sneezes	Sometimes	Common	Rare
Involves whole body	Often	Never	Stomach/bowel only
Symptoms appear quickly	Always	More gradual	Fairly quickly
Extreme tiredness	Common	Rare	Sometimes
Complications	Pneumonia — can be life threatening	Sinus infection Ear infection	Dehydration

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[1] Adaptation from Capital Health *Information Sheet for persons immunized against influenza* (Revised 08 2003)

D.

APPENDIX D
Regional public health centres contacts

E.

APPENDIX E
Influenza: Complementary medicine

1. Introduction

Statistics Canada reported at least 3.3 million Canadians spent more than $1 billion in 1995 on some form of complementary or alternative medicine not covered by a health plan. In particular, women have been documented as frequent users of complementary or alternative therapies. In 1996, nearly 60 per cent of Canadian women believed herbal remedies were helpful in preventing and treating illness.

In two separate studies, more than 50 per cent of general practitioners in Canada were shown to have referred patients for complementary or alternate therapies[1].

This paper summarizes:

- Research related to the use of complementary therapies in the treatment and prevention of influenza.
- A study conducted in Vancouver B.C. (2001) on complementary medicine as informed decision-making.

- An American study (1999) which examined medical records of each participant in a family practice who reported using some form of alternate pharmacotherapy, to determine whether there was discussion of this use with the physician and recommended complementary medicine guidelines for medical practitioners.

2. Research related to the use of complementary therapies in the treatment and prevention of influenza

A. Vitamin E and infectious diseases in the elderly[2]

Incidence of infectious diseases, particularly respiratory disease, increases with age. Age-associated decline in immune function contributes to the increased susceptibility of the aged to infections. Vitamin E supplementation has been shown to improve aspects of immune function in aged animals and human subjects. The protective effect of vitamin E against viral or bacterial infections in young animals has been reported. Researchers investigated the effects of supplementation with vitamin E and other antioxidants on resistance to influenza infection in young and old animals. While young mice supplemented with vitamin E showed only a modest reduction in lung viral titre, old mice supplemented with vitamin E exhibited a highly significant ($P<0.05$) reduction in viral lung titre.

This publication reports on results of researchers' studies on the mechanism of vitamin E-induced reduction of influenza viral titre as well as studies reported by other investigators on the relationship between vitamin E and infectious diseases. Note: There are no controlled studies, which have investigated the effect of vitamin E on infectious diseases in human subjects. Chandra (1992) gave 96 healthy elders a multivitamin supplement for 12 months. The supplemented group had higher antibody response to influenza vaccine and less infection-related illness than the placebo group. Girodon et al. (1996) conducted a double-blind placebo-controlled study in which 81 elders in a geriatric center were supplemented with trace elements (zinc 20 mg. and selenium 100 mcg.) and vitamins (vitamin C 120 mg. B-carotene 6 mg. and vitamin E 15 mg.) or a combination of trace elements and vitamins for two years. Subjects who received trace elements alone or in combination with the vitamins had significantly fewer infectious events. The authors are currently conducting a randomized, double-blind placebo-controlled study to determine the effect of one year of supplementation with vitamin E on the incidence of respiratory infection in elderly nursing home residents.

B. Effect of vitamin E and C combination on experimental influenza virus infection[3]

Successful antioxidant treatment of "free radical diseases" has been reported in the literature. This study examined the preventive effect of vitamin E and C, alone and in combination, on damage caused by influenza virus infection in male mice. The preventive effect of vitamin E was stronger than the effect of vitamin C, but the combination (vitamin E + C) had the strongest effect.

C. Effect of Quercetin on lipid peroxidation and changes in lung morphology in experimental influenza virus infection[4]

Studies have shown treatment with anti-oxidant enzymes and vitamin E reduces free radical formation and decreases the pathogenicity of the influenza virus. The mechanisms behind the protective action of anti-oxidants and their possible use in the prevention and treatment of influenza virus infection are currently areas of interest for researchers.

A study published in 2003, investigated the histopathological changes in the lungs of influenza virus-infected mice, with and without oral supplementation with Quercetin, a bioflavenoid. Quercetin resulted in a significant decrease in the levels of oxidative stress. There was also a significant decrease in the number of infiltrating cells, and a mild to moderate protective effect was observed in lung morphology. Thus, Quercetin may be useful as a drug in reducing the oxidative stress induced by influenza virus infection in the lung, and protect it from the toxic effects of free radicals. Quercetin occurs naturally in fruits, vegetables, nuts, seeds, red wine, tea and flowers.

D. The efficacy of Echinacea-compound-herbal-tea preparation on the severity and duration of upper respiratory and flu symptoms: A randomized, double-blind placebo-controlled study[5]

A study involving 95 employees of a 167-bed nursing and rehabilitation center in York Pennsylvania, was conducted between January 1, 1999 and March 30, 1999, to determine the efficacy of an Echinacea-compound-herbal-tea preparation (Echinacea Plus) given at early onset of cold or flu symptoms in a random assignment double-blind placebo-controlled study. Subjects, with early symptoms of cold or influenza, were randomly assigned to receive Echinacea Plus tea, five to six cups per day, titrating to one over five days or placebo tea bags in a double-blind situation. Each participant completed a questionnaire 14 days after beginning the program. Efficacy, number of days symptoms lasted, and number of days for change were measured with a self-scoring questionnaire. There was a significant difference between the experimental group and control group for all three questions. There were no negative effects reported by any of the subjects in either group.

Note: This publication provides a detailed history of medicinal use of Echinacea and results of studies conducted to evaluate its effectiveness. Liquid preparations are noted to be more effective than tablets.

E. Echinacea[6]

Consumer Reports (February 2004) indicate Echinacea is the top-selling herb in the United States, and reviews 19 Echinacea pill supplements. It found:

- Overall, the amount of Echinacea varied substantially from product to product, even from bottle to bottle of the same product.
- Two products contained little or none of the Echinacea species listed on the label.
- Only three supplements carried adequate warnings for individuals who should avoid Echinacea as well as for children, who should at least take reduced doses. None advised that only brief use is appropriate.
- There is little or no reliable evidence on optimum daily dose, value of additional herbs in several remedies; relative worth of the various Echinacea species, plant parts and preparations.

Echinacea is unsafe for people with autoimmune disease, including Type 1 diabetes, rheumatoid arthritis and multiple sclerosis; deliberately suppressed immunity and allergy to flowers in the aster family (daisies, chrysanthemums, sunflowers and a number of common weeds including ragweed and mugwort). Another risk of Echinacea includes that of excerbation of atopic illness, including asthma.

Studies so far have found no adverse effects except a slight chance of rashes in children and, possibly, a slight chance of gastrointestinal upset.

The following two products were found to supply phenol, and thus Echinacea, at the lowest costs for any given dose:

- Spring Valley Echinacea
- Origin Echinacea

Note: Health Canada has introduced Natural Health Products Regulations, which began Jan. 4, 2004 with transition periods ranging from two years for site licensing and six years for product licensing[7].

F. A strategic call to utilize Echinacea-garlic in flu-cold seasons[8].

An editorial in the Journal of the National Medical Association, January 2000, provides background information related to a potential pandemic influenza and suggests influenza planning include evaluating practical measures people can do at the onset of such an outbreak such as using certain vitamins, foods and herbs and alternate lifestyles for their medicinal value. The research on Echinacea and garlic as immune modulator is reviewed to provide examples.

G. Motherisk update: Can herbal products be used safely during pregnancy? Focus on Echinacea[1].

Motherisk, a column in the journal Canadian Family Physician, conducted a study that showed 98 per cent of surveyed physicians reported patients routinely discussed complementary or alternate medicine with them even though 74 per cent of the physicians were unsure about the safety of herbal products during pregnancy. Although MEDLINE citations on alternative medicine are growing at twice the annual rate of the overall medical literature, few of these articles describe controlled studies and even fewer address safety of these medicinals during pregnancy.

A Motherisk article on Echinacea use during pregnancy presented this information:

> **Question:** "Many of my patients are now using herbal medicines; some even use them during pregnancy. As we enter the "cold and flu" season, many are inquiring about use of the herb Echinacea to prevent these ailments. Is there any evidence to suggest use of Echinacea during pregnancy is safe?"

Answer: Although herbal products have been used in the past during pregnancy and delivery, there is little evidence showing they are safe. Many authoritative reviews of Echinacea report its safety for use during pregnancy has not been established. A recent Motherisk study showed use of Echinacea during first trimester of pregnancy was not associated with increased risk of major malformations.

H. Scientific basis of folk remedies for colds and flu[9].

An editorial in the journal "Chest" in October 2000, reviewed scientific basis of folk remedies for colds and flu: rest; stay warm; drink plenty of fluids and eat chicken soup.

- **Rest** — Relaxation is thought to decrease risk of aspirating virus from the upper airways into the lungs.
- **Stay warm** — Influenza virus grows best at 34-35C and poorly if at all, at temperatures >37C. Staying in a warm environment will keep the airways at a higher temperature.
- **Drink plenty of fluids** — Proper hydration loosens secretions.
- **Chicken soup** — Eating involves "sitting" (resting); inhaling warm steam may raise the temperature of the airways, and consuming liquid aids hydration. Extracts of chicken soup have been shown in one study to significantly inhibit neutrophil chemotaxis (migration) in a standard in vitro assay. Neutrophils may be responsible for some of the local symptoms. This potential mechanism for the beneficial effect of chicken soup needs to be counterbalanced by oncern that the inhibition of chemotaxis may contribute to increased bacterial superinfection. More importantly, this is an in vitro study, and whether there are physiologically significant changes in neutrophil chemotaxis has not been demonstrated.

I. Elderberry extract speeds flu recovery[10]

A standardized extract of elderberry extract — Sambucol (SAM) contains a high concentration of three flavenoids known to have antiviral activity. A multi-institution study in Israel tested this extract for its antiviral properties in cell cultures infected by four Type A and three Type B human strains, and three Type A animal strains that could infect humans as well. In addition, its ability to reduce the duration of illness was tested in a double-blind, randomized, placebo-controlled study in normally healthy people, not previously vaccinated against influenza. Prior to the study, SAM, four tbsp.

daily for three days, the standard adult dose; and twice the standard child's dose was tested for side effects on 35 healthy adults and none were reported.

In the laboratory, SAM reduced hemagglutination and inhibited replication of all strains tested. The clinical trial involved 27 people in a kibbutz in southern Israel, in 1993, who reported to the dispensary at the start of influenza symptoms (Influenza B Panama). In the treatment group, 93.3 per cent experienced a significant improvement of influenza symptoms — including fever — within two days, but it took at least six days for 91.6 per cent of the control group to reach this point. Convalescent-phase serologies showed higher influenza B antibody titre in the treated group. Additional studies are required on a variety of populations.

J. Local cold remedy proves effective against flu in U.S. clinical trial[11]

Cold-FX, a ginseng-based cold remedy developed in Edmonton, was given to 198 seniors in nursing homes in Virginia in 2000. Seniors taking Cold-FX had 90 per cent fewer cases of influenza (one case) than a control group taking a placebo (nine cases). There were few side effects. (Note: The incidence of influenza was low in 2000).

Capital Health conducted a double-blind placebo-controlled study of 323 adults aged 18 to 65 years, in 2004, which indicated that Cold-FX cut the duration of colds nearly in half and significantly reduced their severity. The ability of Cold-FX to strengthen the immune system was also investigated. Participants who took the product showed an increase in the number of T-lymphocytes and helper T-lymphocytes and natural killer cells, all key in fighting off viral infections.[12]

K. Protection against influenza virus infection in mice fed Bifidobacterium breve YIT4064[13]

In healthy breast-fed (but not formula-fed) infants, numerous bifidobacteria inhabit the intestines. These bacteria are thought to play a role in the resistance to infection in humans and animals. Intestines of adults have fewer of these organisms, and some people replace them with yogurt and bifidobacteria cultures.

A study found that mice fed Bifidobacterium breve YIT4064 and immunized orally with influenza virus were more strongly protected against influenza virus infection of the lower respiratory tract than ones immunized with influenza virus alone. The number of mice with enhanced anti-influenza virus immunoglobin G (IgG) in serum upon oral administration of B. breve YIT4064 and oral immunization with influenza virus was significantly greater than that upon oral immunization with influenza virus only. (In several studies, the degree of protection against influenza virus infection was found to be correlated with levels of mucosal immunoglobin A (IgA) in the respiratory tract, and serum (IgG)).

L. Homoeopathic Oscillococcinum for preventing and treating influenza and influenza-like syndromes[14]

Oscillococcinum is a patented, commercially available homoeopathic medicine. The rationale for its use in influenza comes from the homeopathic principle of "let like be cured by like." The medicine is manufactured from wild duck heart and liver, a well-known reservoir for influenza viruses. To determine whether homoeopathic Oscillococcinum or similar medicines are more effective than placebo, in the prevention and treatment of influenza and influenza-like syndromes, the registry of randomized trials for the Cochrane Complementary Medicine Field was searched in Feb. 2001. The manufacturers of Oscillococcinum were contacted for information about other trials, and the Cochrane Acute Respiratory Infections Groups's Register of Trials was searched in Mar. 2001 for placebo-controlled trials of Oscillococcinum or homeopathically-prepared influenza virus, influenza vaccine or avian liver in the prevention and treatment of influenza and influenza-like syndromes.

Seven studies, three prevention trials (n=2265) and four treatment trials (n=1194), were located. Only for two studies was there sufficient information to complete data extraction fully. Two reviewers extracted data and assessed methodological quality independently.

Reviewers concluded Oscillococcinum probably reduces the duration of illness in patients presenting with influenza symptoms. Though promising, data are not strong enough to make a general recommendation to use Oscillococcinum for first-line treatment of influenza and influenza-like syndrome. Further research is warranted but required sample sizes are large. Current evidence does not support a preventative effect of homeopathy in influenza and influenza-like syndromes.

M. Antiviral effect of Gingyo-san, a traditional Chinese herbal medicine, on influenza A2 virus infection in mice[15]

Gingyo-san is a crude drug containing extracts from seven medicinal plants and fermented soybeans in a specific ratio. It has been used clinically in China as a therapeutic agent of the common cold. Rather than attacking invading pathogens, the underlying principle in treatment with traditional Chinese herbal medicines is to improve resistance of patients through action of these compounds to restore patients to a normal physiological state.

Gingyo-san and its components in varying doses, were administered orally to mice one day before, then one and four days after the inhalation of a mouse-adopted strain of influenza A2(H2N2) virus. The antiviral effects of Gingyo-san were evaluated on the basis of:

1. Survival rate: After infection with the virus, 100 per cent of mice treated with ten mg./kg. of the agent survived as compared with a 0 per cent survival of control mice treated with saline;
2. Mean survival time in days: increased in treated mice as compared with those of control mice; and
3. Lung consolidation scores: decreased in treated mice as compared with those of control mice.

N. Randomized, controlled study of Kan Jang versus amantadine in the treatment of influenza in Volgograd[16]

Two randomized, parallel-group clinical studies with a verum and a control group were performed to investigate the effect of a standardized extract (SHA-10) of Andrographis paniculata (N.) fixed combination Kan Jang in the treatment of diagnosed influenza viral infection.

The control group was given a conventional treatment comprising of antiviral agent (amantadine), paracetamol, and ascorbic acid.

These studies of the efficacy of the Kan Jang preparation were conducted in Volgograd, Sweden during the two influenza epidemics in February 1999 (pilot) and January-February 2000. The pilot study was performed in 540 patients (age 19 to 63 years) with 71 Kan Jang-treated patients, and the second study was performed in 66 patients (35 Kan Jang-treated). The patients were examined during the first visit to the physician and again four to five days later. Symptoms were recorded during each examination. In the second study, swabs from the throat and nose were tested in all patients and analyzed for identification of virus using an immunofluorescent method allowing rapid diagnosis of influenza. Kan Jang therapy significantly reduced clinical symptoms and sped up recovery of patients, and significantly (P<0.001) decreased the number of days off work and number of cases with post-influenza complications. Influenza complications were found in 30.1 per cent and 31.43 per cent of Kan Jang-treated patients and in 67.8 per cent and 70.97 per cent of controls in the pilot study and the second study, respectively (p<0.01). Kan Jang was well tolerated by patients.

3. Complementary/alternative medicine in chronic illness as informed self-care decision making[17].

A. Introduction

While there is a tradition of extensive research into patient decision making in relation to discrete health decisions, the field of everyday self-care decision making in chronic illness remains unexplored. The way in which millions of individuals with chronic illness make decisions, related to the self-management of their diseases on an ongoing basis, is highly relevant to our understanding of how health-care services for chronic illness ought to be structured and coordinated.

The term complementary and/or alternative medicine (CAM) involves all therapeutic modalities originating from theoretical and scientific traditions distinct from western biomedical science. Since the conventional health-care system has been dominated by logic and traditions of western biomedicine, and advancements in health care have been guided by rules of evidence associated with biomedical tradition, popular enthusiasm for therapeutics external to that system, has created considerable conflict and confusion among mainstream health-care providers.

Recent polls indicate a majority of mainstream citizens are now using CAM therapeutics. This is especially true among people with chronic illness, for whom the conventional medical care system does not produce a "cure" and who are therefore challenged with the ongoing process of self-care management so they can live their lives as well as possible.

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* Included because chronic illness is a major influenza "at risk" category, and efforts by individuals to attain and maintain their best possible health in the face of chronic illness also address the challenge of influenza

There is a beginning body of knowledge that suggests complex self-care decision making explains the prevalence of CAM participation among chronically ill much more effectively than do unitary interpretations (such as unrealistic hope, or unsophisticated scientific analysis) that are common in medical literature.

A study in Vancouver B.C., explored reasoning underlying complementary and alternative therapy use by 21 individuals; seven each with HIV/AIDS, multiple sclerosis and Type 2 diabetes. The study is a qualitative secondary analysis of a large data set comprised of 63 individual interviews, 42 think-aloud tape recordings, and three focus groups.

All 21 subjects used conventional health care services and all but three also made regular use of one or more CAM approaches. For three individuals, CAM practice was restricted to active positive thinking and prayer; however, the majority experimented with or relied heavily upon various therapies and practices to complement their biomedical care. CAM represents a critical component of their self-care and contributes importantly to optimum well-being.

B. Reconciling contradictions

Subjects were interested in benefiting from both conventional and unconventional therapies. They searched for strategies to address their particular health priorities and improve their overall quality of life. Because conventional medicine was insufficient for these larger objectives, most participants experimented over time with a variety of CAM options.

For some, CAM was a strategy to support the physical body so it might deal better with disease symptoms or with side effects of prescribed medical regimens e.g. bodywork modalities such as massage for foot pain associated with neuropathy; nutritional supplements to strengthen the body's natural ability to cope with disease processes and to heal or cope with the toxic effects of some conventional therapies.

All participants were convinced of the value of cognitive or attitudinal approaches to promoting wellness. Various forms of spiritual practice were reported as ways to optimize health. Spiritual approaches were an important element in addressing emotional effects of having a chronic disease. They served as a stabilizing force in daily life and as a way of making sense of the world when faced with the challenge of chronic illness. Some linked spirituality to healing processes, recognizing that healing the body was only one part of the complex process of re-framing life to accommodate a chronic disease.

C. Becoming knowledgeable

Once individuals with chronic illness have moved beyond initial phases of passive compliance with medical orders, their decisions to try any new treatment or remedy often involved collecting information from various sources and weighing the available evidence. They valued inputs from a variety of sources and sought information to make the most informed choices possible. Participants valued both scientific and anecdotal reports, recognizing each represented a substantially different perspective.

Another information source that was particularly relevant to many of these individuals was obtained from listening to and interpreting cues their own body provided. This was the context for considering information from other sources.

D. Assuming personal responsibility

Subjects believed they were primarily responsible for their health. This is in keeping with values expressed about becoming knowledgeable and listening to their body. Although health-care practitioners may have specialized mechanisms to check and monitor a person's physiological status, it was ultimately up to the individual to integrate available information and make treatment decisions. If something was not working in the body, it was up to the person to decide what to do and where to turn. The physician was only one among many health-care team workers from whom the individuals might seek advice. It was a sense of personal responsibility that led subjects to explore CAM options when no conventional therapies were being offered, or to supplement the effects of conventional treatment.

In the Canadian health-care system, most individuals obtain considerable support for medically prescribed pharmaceuticals and services, while few CAM approaches are reimbursed by health insurance. Many participants considered the cost of CAM to be an important impediment to their responsible approach toward optimal health.

E. Evaluating the effect

Participants articulated a variety of outcome measures they considered relevant to their conclusions about effectiveness and overall value of the CAM approaches they used. These markers included general well-being or energy levels, specific biologic markers and messages they obtained from body listening.

Relevance of energy levels was mentioned by subjects in all three groups. Both conventional and CAM treatments were understood to involve energy expenditures, including physical energy required to attend appointments, as well as emotional and mental energy to engage in treatment. While specific threats to energy levels resulting from toxic treatments might be tolerated for limited periods of time, most subjects reconsidered their course of treatment if fatigue was excessive or continuing. CAM strategies, which reduced fatigue effects of conventional treatments or increased energy levels in general, were considered to be beneficial.

When motivation for CAM experimentation was symptom management, specific effects on the focal symptom were the primary mechanism for evaluating effect.

Many participants were concerned about more abstract problems such as immune system function and the body's natural ability to heal. Such concerns often reflected an orientation to countering unintended effects of medical treatment.

For many, living with a chronic illness had challenged them to rethink their stances with regard to the value of bodily function and mobility in living well, and to re-examine their values about such issues as the balance between quality of life and longevity.

F. Facilitating dialogue

Participants valued ongoing dialogue with their conventional health-care providers to monitor their condition and discuss the effects of their combined management approaches. Many participants expressed a desire to engage their health-care provider in helping them access and interpret their decisions related to CAM approaches. Conflicting attitudes did little to discourage subject's exploration of alternatives, but forced them into coordinating them in a more covert manner.

Researchers conclude that if our collective intent is to assist persons with chronic disease to live as well as possible within the constraints of their conditions, then a reasoned and realistic approach to integrating CAM and conventional medicine seems necessary. Because chronic illnesses are, by definition, those conditions for which biomedicine has not found a cure, the role of CAM in ameliorating symptoms, promoting health and enhancing healing seems particularly relevant. The voices of persons affected by chronic illness offer an important contribution to the public debate on the role of CAM in an effective health care delivery system.

4. Alternative pharmacotherapy: suggested guidelines for medical practitioners[18]

Use of alternative medicine is increasing rapidly. The most common form of alternative treatment is self-medication with herbs (botanicals or phytomedicines), vitamins or other pharmacologic or biologic substance. Some herbal products can cause adverse effects, have the potential to interact with or potentiate prescription medications and may contain contaminants. Chemical analysis has shown some herbal preparations do not contain some of the desired chemicals they advertise. Although theses products have shown promise as treatments, more clinical information is warranted.

A study in Augusta, Georgia conducted between June 1999 and August 1999, recorded data from structured interviews of 178 patients in an academic family practice. It examined medical records of each participant who reported using some form of alternate pharmacotherapy to determine whether there was discussion of this use with the physician.

Approximately one third of patients reported using some form of alternate pharmacotherapy for one year or less, learning about alternative medications mostly from the media and being generally satisfied with the results. Eighty-four per cent of subjects reported not having been asked by their physician about their use of these drugs on the day of their office visit and interview, and more than one half (59 per cent) reported never having been asked about them on any of their office visits. Medical record reviews indicated that for the most part physicians did not document having discussed or making recommendations about the use of alternative pharmacotherapies at any point in their relationship with the patient.

- Physicians should include questions about alternative medication and dosages on intake and history forms.

- Nursing staff can routinely ask about herbs, vitamins or natural remedy use.
- Signs in examination rooms prompting conversation about alternative treatments may also be helpful.
- Physicians should incorporate inquiry and documentation into standard practice.
- Use of a physicians' resource such as *The Physicians Desk Reference for Herbal Medicines* is suggested and familiarity with a few reputable websites (Refer to Section VI — Websites)
- Patient education information covering benefits and risks associated with popular substances should be made available. Medical students or residents should also be encouraged to familiarize themselves with these materials and discuss a patient's use of alternative medications with the attending physician.

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   www.herbmed.org
9. Hom-Inform - British Homoeopathic Library
   www.hom-inform.org
10. International Bibliographic Information on Dietary Supplements Database (IBIDS) – Contains bibliographic records, including abstracts, on the topic of dietary supplements, which includes vitamins, minerals and herbal and botanical supplements.
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11. National Center for Complementary and Alternative Medicine (NCCAM) – general CAM information, ongoing NIH clinical trials, funding opportunities and CAM workshops.
    www.nccam.nih.gov

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    www.nccam.nih.gov
13. Natural Standard - comprehensive, high quality, evidence-based information about complementary and alternative therapies.
    www.naturalstandard.com
14. PubMed Complementary Medicine Subset - a comprehensive CAM search strategy. Accessible in the limits section.
    www.nlm.nih.gov/nccam/camonpubmed.html
15. Rosenthal Centre - Contains lists of CAM professional and research resources.
    www.rosenthal.hs.columbia.edu

F.

APPENDIX F
Health-care provider and public resources

INFLUENZA SELF-CARE

It's in your hands

Helping people to help themselves and others during influenza season and pandemic

What is influenza self-care?

Each year, influenza-associated illnesses have a substantial impact on an already strained health-care system. The system will be strained considerably more in the case of pandemic influenza.

The Influenza Self-Care Strategy is designed to increase the public's confidence and ability to prevent and treat influenza and to educate them about how best to use the health-care system during regular influenza season and pandemic.

Your role as a health-care provider

As a health-care provider, you have an important role to play in making the Influenza Self-Care Strategy work. Research shows that the greatest successes in changing long-term behaviour occur when a health education program is offered and supported by health-care providers while in direct contact with their clients/patients i.e. integrated into the health-care system.

This booklet contains critical information your clients/patients need in order to care for themselves and others during influenza season and pandemic. You can help them to help themselves by providing this information during consultations.

The Influenza Self-Care Strategy addresses four areas of concern:

1 Informing the public (page 4)

2 Prevention and self-care (page 6)

3 Managing the illness: Adults (page 8)

4 Managing the illness: Children (page 10)

Informing the public

INFLUENZA

Influenza is an infection of the respiratory tract caused by one of three virus types:

- Influenza A, which causes the most severe and widespread disease, infects mammals (including pigs and horses) and birds;
- Influenza B, which infects only humans (commonly children);
- Influenza C, which is mild and rare.

In North America, influenza usually affects people between November and April. The virus is defined by two surface proteins (antigens): Haemagglutinin (H) and Neuraminidase (N), which undergo frequent minor changes (antigenic drift), causing local outbreaks every two to three years. Most previously-infected individuals will continue to have some protection against the slightly changed virus.

Pandemic influenza

Three to four times each century, a radical change occurs in the genetic material of the influenza A virus, and a new subtype will suddenly appear with a completely new H or N antigen (antigenic shift). Protection people have developed to the influenza that occurs every year will not apply. The virus will spread rapidly around the world, causing a global epidemic (pandemic) with the potential to cause serious illness, death, and social and economic disruption. The World Health Organization (WHO) monitors influenza virus strains circulating in humans. Nations world-wide, Canada included, are preparing contingency plans.

Influenza transmission

The influenza virus is passed from person to person by droplets and small particles of respiratory fluid when an infected person coughs, sneezes or talks. Airborne droplets can enter the body through mucus membranes of the eyes, nose or mouth. The virus, contained in droplets, can travel one to two metres in the air. It can live for one to two days on hard surfaces; eight to 12 hours on cloth, tissue or paper; and five minutes on hands.

People develop symptoms of influenza from one to three days after becoming infected. They can spread the virus from one day before and up to five days after the onset of symptoms.

SYMPTOMS OF INFLUENZA

Primarily these include:

- sudden fever ≥38°C (100.4°F)*.
- dry cough.
- aching body, especially head, lower back and legs.
- extreme weakness/ tiredness, not wanting to get out of bed.

Other symptoms can include

- chills.
- aching behind the eyes.
- loss of appetite.
- sore throat.
- runny/stuffy nose.

** For people older than 75 years, the temperature may be lower, e.g. 37.2°C (99°F). They may also experience vomiting, diarrhea or abdominal pain.*

Usually fever resolves in three to five days and the person experiences a general sense of improvement. Tiredness and cough can persist for several weeks.

Influenza symptoms are distinct from those of a cold or gastroenteritis.

How serious is influenza?

Certain groups are at risk to develop serious complications, such as pneumonia, which may even result in death. They include:

- children < two years and seniors, because they have weaker immune systems.
- those whose immune systems are compromised by disease or medication/treatment.
- those with certain chronic illnesses, such as heart or lung disease.

Effect of influenza

Each year, influenza-associated illnesses have a major effect on school/work absenteeism and productivity, and on an already strained health-care system.

IS IT INFLUENZA, A COLD OR STOMACH FLU?

Symptoms/Description	Influenza	Common Cold	Stomach Flu
Fever	Usually high	Sometimes	Rare
Chills, aches, pains	Frequent	Slight	Common
Loss of appetite	Sometimes	Sometimes	Common
Cough	Usual	Sometimes	Rare
Sore throat	Sometimes	Sometimes	Rare
Sniffles or sneezes	Sometimes	Common	Rare
Involves whole body	Often	Never	Stomach/bowel only
Symptoms appear quickly	Always	More gradual	Fairly quickly
Extreme tiredness	Common	Rare	Sometimes
Complications	Pneumonia; can be life threatening	Sinus infection Ear infection	Dehydration

Prevention and self-care

ANNUAL IMMUNIZATION

Because the influenza virus is always changing, a new vaccine is needed yearly. WHO recommends a vaccine that targets the three most likely strains to circulate in the next influenza season. The best time to be immunized is during October and the first half of November, just before the influenza season, as it takes two weeks for the vaccine to become fully effective. However, it is not too late to get immunized once influenza has arrived in the community. The vaccine cannot cause influenza because the virus in the vaccine is killed. The vacine is 70-90 per cent effective in young, healthy people and protection lasts about six months. For those with weakened immune systems, the vaccine is less effective, but immunization can reduce morbidity.

Since vaccine strains are selected six to nine months before the start of influenza season, there is a slight chance the strain may change before the season actually starts. The vaccine will **NOT** protect against other respiratory illnesses.

Who should be immunized?

- those at greatest risk of serious complications.
- caregivers, volunteers, health-care workers and others capable of transmitting the disease to people who are at risk.

Alberta Health and Wellness covers the cost for at risk individuals. Some employers offer vaccine to their staff. People who are not at risk may be immunized for a fee. Everyone should be encouraged to take advantage of these opportunities.

Who should not be immunized?

- those severely allergic to eggs, because viruses used to make vaccine are grown in eggs.
- people who have severe allergies to any component of the vaccine.
- those with severe reactions to a previous vaccine.
- children under six months of age.
- those with acute febrile illness (they can be immunized once symptoms have abated).

Vaccine reactions

The most common reaction is some redness and soreness at the injection site, which usually resolves in two days. Some may develop a fever, tiredness and aching after six to 12 hours that may last for one to two days. Rarely a person has an allergic reaction to some other component of the vaccine within 12 hours.

What about antiviral medications?

Antivirals (oseltamivir or amantadine) may be prescribed, unless contraindicated, for:

- those at risk who cannot be immunized.
- those at risk who are immunized after influenza enters the community and who require protection for the two-week vaccine response period.
- non-immunized contacts of people who are at risk.
- those at risk in an outbreak when the circulating strain is different from the vaccine strains.

Pneumococcal polysaccharide vaccine

This vaccine protects against the 23 strains of bacteria that most often cause pneumonia following influenza. Alberta Health and Wellness covers the cost of this vaccine for those who are at risk, including:

- people ≥ 65 years.
- residents of long-term care facilities.
- individuals ≥ two years with certain chronic conditions.

Most need the vaccine only once in their lifetime. It can be given at the same time as the influenza vaccine, or anytime of the year.

Pneumococcal conjugate vaccine is given to infants, starting at age two months, as part of Alberta's routine immunization program.

Where to get immunized

- local public health centres by appointment, or at an off-site influenza immunization drop-in clinic.
- many physicians' offices.
- some pharmacies and work sites.

HAND WASHING

Next to immunization, the single most important way to prevent influenza is frequent hand washing.

Wash hands

BEFORE:
- preparing, serving or eating food or feeding others.
- brushing or flossing teeth.
- inserting or removing contact lenses.
- treating wounds/cuts (and after).

Good hand hygiene is especially important for children in day care.

AFTER:
- any contact with a person with influenza or their immediate environment.
- toileting self or others or changing a diaper.
- blowing nose or wiping a child's nose.
- coughing or sneezing.
- handling garbage.

Children should wash their hands after playing with toys shared with other children.

Respiratory etiquette

- Use disposable tissues for wiping nose and discard immediately into waste container.
- Cover nose and mouth when sneezing or coughing.
- Wash hands after coughing, sneezing or using tissues.
- Keep fingers away from the eyes, nose and mouth.

Other ways to minimize transmission

- Avoid crowds during influenza season.
- Visit those who have influenza only if necessary, and stand more than one metre away from them.
- If a household member has influenza, keep their personal items separate. Clean surfaces around them frequently with detergent cleanser. Do not shake their linens.
- Do not share personal items or drinks.

Caring for oneself

A strengthened immune system can be achieved through physical and emotional well-being:

- drinking plenty of water.
- not smoking.
- having regular exercise.
- taking a multivitamin daily, if an older adult.
- decreasing stress, staying optimistic and socially active.

Planning ahead

Everyone - especially those living alone, single parents of young children, or caregivers of frail or disabled people - should be encouraged to prepare for when they may contract influenza. They should:

- have enough fluids and household items (e.g. tissues) at home to last one to two weeks.
- have antipyretics and a thermometer (knowing correct use).
- identify a backup caregiver for loved ones/children.

Employers should be encouraged to develop contingency plans to address high rates of illness and support employees while still maintaining services.

Managing the illness: Adults

GENERAL SELF-CARE MEASURES

Adults who have contracted influenza should:

- rest.
- avoid contact with others while contagious (five days), if possible
- drink extra fluids.
- gargle with warm salt water; use throat lozenges, saline nose drops, a humidifier.
- avoid smoking and second hand smoke.
- talk to others about concerns and ask for help if needed. Keeping in touch by phone or email can help alleviate feelings of aloneness when sick.
- treat symptoms with over-the-counter (non-prescription) medication with careful attention to the following guidelines.

Over-the-counter medications (OTCs)

Most people treat influenza with OTC medications that contain several active ingredients.

People should be encouraged to consult with a pharmacist or their health-care provider regarding dosing, contraindications, side effects, etc.

General OTC guidelines

- To prevent adverse reactions or taking in substances that have little/no effect, take an OTC remedy that treats only one symptom and/or has only one active ingredient.
- If taking more than one medication at a time, check the labels to avoid taking the same ingredient twice.
- Try "regular strength" before "extra strength."
- Follow instructions on the label and note any possible side effects or drug/health condition interactions.
- Check the expiry date and take outdated medications to a pharmacy for disposal.
- Keep all medications out of the reach of children.

USE ALL MEDICATIONS AS DIRECTED ON THE LABEL.

Treating specific symptoms with OTCs

Muscle pain and fever

Acetaminophen (preferred for older adults)
or ibuprofen

Cough

Dextromethorphan (DM) for dry cough, only if it interrupts sleep or causes chest discomfort. Delsym® and Benylin-Dry Cough® contain DM without other ingredients.

Nasal congestion

Decongestant nose drops/sprays provide rapid short term relief. Watch for rebound congestion after two or three days, then switch to oral decongestants (e.g. pseudoephedrine).

Sore throat

Lozenges, throat sprays. Dyclonine (e.g. Sucrets®) will numb the throat; products with honey, herbs or pectin will soothe.

Complementary medicines

There is some research that shows the following may help shorten influenza illness or lessen its severity: Vitamins E and C, COLD-FX® (ginseng), Echinacea Plus® (herbal tea), elderberry (Sambucol®), quercetin, Bifidobacterium breve, homeopathic Oscillococcinum, gingyo-san (traditional Chinese herbal medicine), Kan Jang (Andrographis paniculata).

Health-care providers should be informed about complementary medicines taken by clients and advise them on potential disease/drug interactions.

When to seek medical care

Primary concerns for adults are compromised respiratory function, dehydration and sepsis.

Adults with influenza should seek medical care if they have heart or lung disease or any other chronic condition that requires regular medical attention; an illness or treatment that suppresses the immune system; or frailty.

Individuals should seek medical care promptly if they have:

- shortness of breath while resting or doing very little.
- difficult or painful breathing.
- wheezing.
- coughing up of bloody sputum.
- chest pain.
- fever for three to four days without improvement or worsening.
- improvement, then sudden high fever or recurrence of symptoms.
- extreme drowsiness and difficulty awakening.
- disorientation or confusion.
- severe earache.
- new inability to function, if an independent elder.
- persistent vomiting, if elderly.

Prescribed medications - adults

- Antibiotics are not prescribed for uncomplicated influenza but may be for complications such as pneumonia.
- Antivirals must be started within 48 hours of the first symptoms of influenza to decrease length and severity of the illness.

Managing the illness: Children

SYMPTOMS

Influenza illness is more severe in children under five years old. Age-related differences are evident in infants and toddlers. Infants usually develop higher temperatures, and unexplained fever may be the only sign. Central nervous system symptoms may appear in up to 20 per cent of infants/children and may be suggestive of meningitis. Nausea, vomiting, diarrhea and abdominal pain occur in 40-50 per cent, mainly those three years of age and under.

Influenza is an important precursor of croup, pneumonia and bronchitis. Otitis media and non-purulent conjunctivitis are more frequent. Myositis is a frequent complication, especially after infection with Influenza B.

Very young children and infants probably have symptoms similar to older children and adults but do not know how to tell caregivers. They may be irritable, eat poorly, and develop a hoarse cry and barking cough (croup).

Children over five years of age and adolescents have symptoms similar to adults.

Caring for children

Treat symptoms if necessary using:

- Acetaminophen as the preferred medication to treat fever and muscle pain. Take the child's temperature before giving an antipyretic. Do not wake a child to administer an antipyretic. Ibuprofen is an alternate medication but should **not be** used for children less than four months old.

Children under 18 years should NOT take acetylsalicylic acid (ASA) or any products containing ASA, because of the potential for Reye's Syndrome.

- Cough suppressant (DM) for a dry cough in children older than two years only if cough is interrupting sleep (not for asthmatics or moist cough).
- Saline nose drops or spray - decongestant sprays in children over six months, oral decongestants with older children, if needed.
- Throat lozenges or warm salt water for gargling. This may help children over six years of age.

Other measures:

- Dress a child in lightweight clothing and keep room temperature at 20°C.
- Offer fluids/breast feed frequently while child is awake.
- Settle the child or involve them in quiet activities while at home (~five days).
- Use a humidifier (except with asthmatic children).
- Elevate head of the bed; infants may be more comfortable in a car seat or baby swing.
- Cool baths/alcohol rubs are NOT recommended.

Humidifiers should be cleaned every day to prevent mold blowing in the air.

- ***Use hot water with one part bleach to 10 parts water.***
- ***Scrub the inside with a cloth or bottle brush to get into tight corners.***
- ***Rinse well with hot water.***

When to seek medical care

Primary concerns for children with influenza are respiratory compromise, dehydration, secondary bacterial infection and neurological complications (more common in very young infants and children with chronic disease).

Almost all children with influenza have fever – the presence or absence of fever as a sign of severity of influenza is not helpful.

Parents/caregivers are advised to seek medical care for a child with influenza if the child:

- is < three months old.
- has heart or lung disease or any chronic illness requiring regular medical care.
- has disease or is on treatments causing immunosuppression.
- takes ASA regularly for a medical condition.
- has a change in respiratory pattern with an increased respiratory rate and signs of labored breathing.
- is very listless with a loss of interest in most things, e.g. playing, watching TV, eating/drinking.
- is excessively irritable and inconsolable.
- has significantly reduced urine output, for example urinates less often than every six hours while awake; or has a dry diaper for more than three hours if younger than six months, or longer than six hours if six to 23 months old.
- looks very ill and the caregiver is worried.

When to take a child to hospital emergency

If the child:

- has severe trouble breathing (not caused by nasal congestion).
- has blue lips or hands or sudden pallor, or has cold legs up to their knees.
- has a full or sunken fontanel.
- is limp or unable to move.
- is excessively sleepy to the point of being difficult to arouse or unresponsive.
- shows signs of pain: headache and/or stiff neck, especially if combined with fever and listlessness and their eyes are sensitive to light.
- seems confused.
- has a seizure.

For more information contact:

Health Link Alberta

Edmonton, call 408-LINK (5465)

Calgary, call 943-LINK (5465)

Outside Edmonton and Calgary local calling areas,

call toll-free 1-866-408-LINK (5465)
visit: www.healthlinkalberta.ca

Public Health Centres (Monday - Friday, daytime hours), or physicians or pharmacists

Alberta Health and Wellness

visit: www.health.gov.ab.ca

Fact Sheets Available:

- Pandemic influenza
- Hand washing to prevent influenza
- How to take a temperature – children and adults
- Over-the-counter (non-prescription) medications for influenza
- Influenza antiviral medications
- Dealing with stress or feelings of fear because of influenza

CD0093 June 2005

Alberta

FACT SHEET

Pandemic influenza

What is influenza?

Influenza is an infection of the lungs and airways caused by a virus. It can cause severe health problems for children less than two years old, seniors, people with certain chronic illnesses (such as heart or lung disease), and people with weakened immune systems.

Every year, various strains of influenza virus circulate throughout the world. The virus that causes influenza often changes slightly. Most people who have had influenza will have some protection against the changed virus. Pandemic influenza is radically different.

What is pandemic influenza?

Of the three influenza virus types (A, B and C), only Type A causes pandemics. It also infects birds and mammals, including pigs and horses. Three to four times each century the influenza Type A virus forms a completely new strain. Everyone is at risk of infection with the new strain. Current vaccines will not offer protection.

If this new virus spreads easily from person to person, it could quickly travel around the world and cause serious illness and death for millions of people. This global epidemic is called an influenza pandemic. A pandemic differs from the influenza we see every year in that larger numbers of people catch it, the illness is more severe, and more people die.

Experts predict an influenza pandemic will happen within the next five to 10 years.

Why do scientists expect another pandemic?

In the 20th century, there were three pandemics:

- 1918/1919 Spanish Influenza
- 1957/1958 Asian Influenza
- 1968/1969 Hong Kong Influenza

The 1918 pandemic was the most serious, causing over 20 million deaths worldwide. In Alberta, there were 38,000 cases and 4,000 deaths out of a population of about 579,000. In Canada, 30,000-50,000 people died - only slightly less than during World War I.

The average time between each of the last four pandemics has been 25 years. However, the range has varied between 11 and 39 years. It has been more than 35 years since the last pandemic.

What would the effect of a pandemic be in Alberta?

Experts believe a pandemic influenza virus could reach Canada within three months after showing up anywhere in the world. It would have its greatest effect on Canadians within five to seven months.

INFLUENZA SELF-CARE
It's in your hands

The effect in Alberta could be broad and severe. Compared to a non-pandemic year, there could be:

- four to seven times as many outpatient visits due to influenza.
- four to seven times as many hospitalizations due to influenza.
- eight to 20 times as many deaths due to influenza.
- a shortage of hospital beds.

Public services such as schools could be affected. Employee absences could make it difficult for private businesses to operate.

What can we do to prevent a pandemic?

With current scientific knowledge there is no way to prevent a pandemic. However, there are ways to lessen the effect of a pandemic - to decrease the number of deaths and control the effect on Alberta's health-care system. It is especially important to quickly develop and produce a vaccine.

A global network, coordinated by the World Health Organization – WHO, is watching for new influenza strains. When the pandemic strain appears, this surveillance network will provide Canada with an early warning so we can start producing vaccine as quickly as possible.

What are governments doing to prepare for a pandemic?

Federal, provincial, territorial and regional governments are working on contingency plans for a pandemic. These comprehensive plans include everything from vaccine production and distribution to keeping the public up-to-date on the pandemic.

What should you do during a pandemi

During a pandemic, health professionals will be extremely busy taking care of the ill and providing vaccine, when it becomes available.

There are things you can do to take care of yourself and your family.

- Wash your hands - this is one of the best defences against influenza.
- Rest.
- Drink plenty of fluids.
- Take acetaminophen or ibuprofen for fever and pain.
- Minimize contact with others, especially seniors, children and people with chronic disease or weakened immune systems.
- **Keep informed.**

In a pandemic, Alberta Health and Wellness and your regional health authority will advise you about vaccine availability and any changes that may be made in health-care services to deal with the pandemic. Volunteers may be needed as contingency plans unfold. Your help will be appreciated.

For more information contact:

Health Link Alberta
Edmonton, call 408-LINK (5465)
Calgary, call 943-LINK (5465)
Outside Edmonton and Calgary local calling areas, call toll-free 1-866-408-LINK (5465)
visit: **www.healthlinkalberta.ca**

Public Health Centres
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physicians or pharmacists

Alberta Health and Wellness
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[Contact information]

FACT SHEET

Hand washing to prevent influenza

Next to immunization, the single most important way to prevent influenza is to wash your hands often.

Make a habit of washing your hands often. This is especially important after you have been in contact with someone who has a cold or influenza. You should also wash your hands after being around children, because children easily spread influenza in the community. Keep your hands away from your eyes, nose and mouth, since the virus can enter your body through these openings. Wash your hands with soap and water, or use an alcohol-based hand rub.

How to wash your hands properly with soap

1. Use liquid soap or a clean bar of soap. Wet your hands with warm, running water. Rub on soap. Lather well. You don't need antibacterial soap; regular soap is fine.
2. Rub your hands together briskly for at least 15 seconds.
3. Scrub all over, including the backs of your hands, wrists, between your fingers, and under your fingernails.
4. Rinse under running water.
5. Dry with a clean towel.

If you are in a public restroom, use a paper towel to turn off the faucet after you finish so you won't have to touch the taps.

Store liquid soaps in closed containers. Wash and dry the containers before you fill them. To prevent bacteria from getting in, do not top up partially empty containers.

If you are a parent, teacher, day-care provider or other child caregiver, teach children proper hand washing habits by example. Wash hands with your children or watch them as they wash their hands. Place hand-washing reminders at a child's eye level. Post a chart by the bathroom sink where children can mark each time they wash their hands.

How to wash your hands properly with alcohol-based hand rubs

You don't need water to use alcohol-based hand rubs. They are an excellent alternative to hand washing, especially when soap and water aren't available. Pharmacies have them available in a variety of sizes, including purse size.

Alcohol-based hand rubs actually work better than hand washing to kill bacteria and viruses if used properly. They cause less skin dryness and irritation than hand washing. However, hand rubs are not effective if hands are soiled. If your hands are dirty, use soap and water. If soap and water are not available, use a towelette that contains detergent. Then use a hand rub. *Not all hand rubs are the same. Use only alcohol-based products.*

INFLUENZA SELF-CARE

It's in your hands

To use an alcohol-based hand rub:

1. Read the instructions on the label.
2. Put some of the rub on the palm of your hand and rub your hands together.
3. Cover all surfaces, including fingers and wrists, and rub until dry (about 15 to 25 seconds).

Young children can use hand rubs if you help them. Make sure the rub has completely dried before the child touches anything. This will prevent them from taking in alcohol from hand-to-mouth contact. Store the container safely away after use.

Wash your hands BEFORE:

- preparing, serving or eating food, or feeding others.
- brushing or flossing your teeth.
- putting in or taking out contact lenses.
- and after treating wounds or cuts.

Wash your hands AFTER:

- any contact with a person who has influenza or with their immediate environment.
- using the toilet, helping a child to use the toilet, or changing a diaper.
- blowing your nose or wiping a child's nose.
- coughing or sneezing.
- handling garbage.

Children should wash their hands after playing with toys shared with other children. Hand washing is especially important for children who attend daycare.

To protect your children's health:

- Make sure your day-care provider promotes good hygiene, including frequent hand washing or supervised use of alcohol-based hand rubs.
- Ask whether or not the children are required to clean their hands often; not only before meals.
- Make sure the sink is within reach for children to use.
- Make sure soap and paper towels are near the sink.

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FACT SHEET

How to take a temperature – children and adults

How to take a child's temperature

There are four ways to take a child's temperature:

- under the armpit.
- by the mouth (oral).
- in the ear.
- by the bum (rectal).

Taking a rectal temperature is the best way to get an exact reading for children under two. Taking a temperature under the armpit is not as exact, but it will let you know if your child has a fever. When children reach the age of five, they can have their temperature taken by mouth.

A digital thermometer is best for taking temperatures by the armpit, oral, and rectal methods. Ear thermometers are more expensive. Do not use a mercury thermometer. Mercury is toxic and the thermometer could break. A fever strip does not give an accurate temperature. Ask the pharmacist any questions you may have when buying a thermometer.

Tips for using a digital thermometer

Always remember to press the button to turn the thermometer "on."

Follow instructions for armpit or mouth method. When you hear the "beep," remove the thermometer and read the temperature on the display.

Armpit method

This method is used for newborns and young children.

- Place the tip of the thermometer in the centre of the child's armpit. The silver tip must touch the skin.
- Make sure the child's arm is tight against his or her body.
- Leave the thermometer in place for about one minute, until you hear the "beep."

Mouth method

This method should NOT BE USED for children under five years old.

- Carefully place the tip of the thermometer under the child's tongue.
- With the child's mouth closed, leave the thermometer in place for about one minute, until you hear the "beep."

To clean the thermometer, wash only the tip with soap and warm (not hot) water and wipe off with alcohol. Dry well.

INFLUENZA SELF-CARE
It's in your hands

What is a normal temperature?

The normal temperature range varies, depending on the method you use:

Armpit: 34.7°C to 37.3°C (94.5°F to 99.1°F)

Mouth: 35.5°C to 37.5°C (95.9°F to 99.5°F)

Ear: 35.8°C to 38°C (96.4°F to 100.4°F)

Rectum: 36.6°C to 38°C (97.9°F to 100.4°F)

When a child is sick with an infection, it is normal to have a fever (temperature higher than 38°C (100.4°F)). It is part of the normal process of fighting an infection. A fever will not hurt a child. Usually, it goes away after three days.

Babies younger than three months old should see a doctor when they have a fever. Older children with fever who seem otherwise well and are drinking enough liquid can be treated at home. **The degree of a fever does not indicate how serious the illness is; the child's behaviour and overall appearance are generally the most important factors.**

Taking an adult's temperature

Take an adult's temperature by mouth, in the ear or under the armpit. The armpit method is less accurate and is normally used only if the person is extremely drowsy or not clear mentally. Follow the same method as used for children when using a digital thermometer.

Normal body temperature varies between 35.8°C (96.4°F) and 37.2°C (99°F) in healthy people. It may vary throughout the day (rising as much as one degree); low in the morning and reaching a maximum during the late afternoon.

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(Contact information)

Alberta

FACT SHEET

Over-the-counter (non-prescription) medications for influenza

What is influenza?

Influenza is an infection of the lungs and airways caused by a virus. The most common influenza viruses are influenza Type A and influenza Type B. In North America, influenza usually affects people between November and April.

Symptoms include sudden fever, chills, headache, body aches and extreme tiredness. Sore throat and a runny or stuffed nose are also common. Most people get better within a week. However, people with long-term health problems or those with weaker body defenses such as the very young, elderly and those on certain medications, may have serious complications such as pneumonia or worsening of their health condition(s).

Immunization is the best way to avoid getting influenza or to lessen its severity. In addition, the single most important way to prevent influenza is frequent hand washing.

How to care for yourself if you have influenza

- Rest.
- Avoid contact with others while you are contagious (five days), if possible.
- Drink extra fluids.
- Gargle with warm salt water and/or use salt-water nose drops.
- Use a humidifier.
- Do not smoke, and avoid second-hand smoke.

Most people can treat influenza symptoms with over-the-counter (OTC) medications, as long as they follow certain guidelines.

Talk to your pharmacist about what product to use, dosage, possible side effects, and conditions when you should not use the remedy.

Guidelines for using over-the-counter medications

- To prevent adverse reactions or taking extra medication that will have little or no effect, use an OTC remedy that treats only one symptom and/or has only one active ingredient.
- If you are taking more than one medication at a time, check the labels to avoid taking the same ingredient twice.
- Try "regular strength" products before "extra strength."
- Follow instructions on the label. Note possible side effects or drug/health conditions when the medication should not be used.
- Check the expiry date on medications in your home. Take outdated medications to a pharmacy for disposal.
- Keep all medications out of reach of children.

How to treat specific symptoms in adults

Muscle pain and fever:

- Use acetaminophen (the best choice for older adults), for example Tylenol®. If you take acetaminophen for a long time or in high doses, it can affect the liver and kidneys.
- Ibuprofen, for example Advil® or Motrin®, is an alternative. Ibuprofen can irritate the stomach.

Children under eighteen should NOT take acetylsalicylic acid (ASA), for example Aspirin® or any products containing ASA. Combined with influenza, ASA can cause Reye's Syndrome, a very serious condition affecting the nervous system and liver.

INFLUENZA SELF-CARE

It's in your hands

Cough: Try a medication with Dextromethorphan (DM) for a dry cough that prevents you from sleeping or causes chest discomfort. Delsym® and Benylin-Dry Cough® contain DM (without other ingredients).

Stuffy nose: Use a decongestant. Nose drops or sprays act quickly and have fewer side effects than medications you take by mouth but should only be used for two to three days to avoid rebound congestion. If stuffy nose continues consider an oral medication such as pseudoephedrine. Decongestants may cause dry mouth, sleep problems, rapid heartbeat or other side effects. People who have long-term health problems or who are on other medications should not take decongestants without talking to a health-care provider.

Sore throat: Try lozenges or throat sprays. Dyclonine (for example Sucrets®) works best to numb the throat. Products containing honey, herbs or pectin soothe the throat.

How to treat specific symptoms in children

Treat influenza symptoms in children with OTC medications only if necessary.

Muscle pain and fever: Acetaminophen (for example Tylenol®) is best. You may try ibuprofen (for example Motrin®) instead, but do not use it for babies less than four months old. Take the child's temperature before giving medication for fever. Do not wake a child to give the medication.

Cough: Use a cough suppressant (DM) for a dry cough in children over two years old, but only if the cough is disturbing the child's sleep. Do not use DM for a moist cough or for children with asthma.

Stuffy nose: Saline nose drops, such as Salinex®, may help a stuffy nose and cough. You may use decongestant sprays for children older than six months, and oral decongestants for older children, if needed.

Sore throat: Throat lozenges or a warm salt water gargle may help children older than six years.

What about complementary medicines?

Many people use complementary medicines to support their health. Find out all you can about these medicines before you take them. Use as directed and with the same precautions as you would with other OTC medications. For example, echinacea is unsafe for peo with autoimmune diseases (including type 1 diabetes, rheumatoid arthritis and multiple sclerosis), suppressed immune systems and certain allergies.

There is some research that shows complementary medicines (see list) may help shorten influenza illness or lessen its severity:

- vitamins E and C.
- COLD-fX®, a ginseng-based remedy developed in Edmonton.
- an echinacea herbal tea (Echinacea Plus®).
- an extract of elderberry (Sambucol®).
- quercetin, a bioflavenoid that occurs naturally in fruits, vegetables, nuts, seeds, red wine, tea and flowers.
- Bifidobacterium breve, which occurs naturally in the intestinal tract and in yogurt.
- homeopathic Oscillococcinum.
- gingyo-san, a traditional Chinese herbal medicine.
- Kan Jang (standardized extract of Andrographis paniculata).

Be sure to tell your health-care provider about any OTC or complementary medicines you are taking.

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FACT SHEET

Influenza antiviral medications

What is influenza?

Influenza is an infection of the lungs and airways caused by a virus, typically influenza Type A or influenza Type B. In North America, it usually affects people between November and April.

Symptoms include sudden fever, chills, headache, body aches and extreme tiredness. Sore throat and a runny or stuffed nose are also common. Most people get better within a week. However, people with long-term health problems or those with weaker body defenses such as the very young, elderly and those on certain medications, may have serious complications such as pneumonia or worsening of their health condition(s).

How can influenza be prevented?

The best way to avoid influenza is to get immunized every year. A new vaccine is made each year because the influenza virus is always changing. The best time to get the vaccine is between early October and mid November, just before the influenza season starts. It takes two weeks for the vaccine to take effect.

Influenza vaccine is 70 to 90 per cent effective in young, healthy people. When a person's immune system is weakened, the vaccine is not as effective and doesn't last as long. However, it can lessen the severity of the illness if a person does become infected. People who are severely allergic to eggs should not get immunized because eggs are used in making the vaccine. In rare cases, a person has had an allergic reaction to some other ingredient in the vaccine.

Talk with a public health nurse or physician about the risks and benefits of immunization.

What are "antiviral" medications?

Antiviral medications can stop or slow down the action of viruses. They can be used to help prevent influenza. They can also help shorten the length of time a person has the illness and lessen its severity. The two most commonly used antiviral medications in Alberta are amantadine (for example, Symmetrel®) and oseltamivir (for example, Tamiflu®).

When are antiviral medications used to prevent influenza?

Some people may be at risk of getting serious complications from influenza but cannot be vaccinated, for example, because of an allergy to eggs. A doctor may prescribe an antiviral drug to give these individuals some protection during the influenza season.

INFLUENZA SELF-CARE
It's in your hands

Doctors may also prescribe antiviral medications for people at high risk if:

- they need extra protection, even though they were immunized.
- they were immunized after the influenza virus appeared in the community (to help protect them until the vaccine becomes effective).
- the strain of the influenza virus circulating in the community is different from the vaccine strains.

They may also be prescribed for people who have not been immunized and are in contact with those who are at high risk.

When are antiviral medications used to treat influenza?

A doctor may prescribe antiviral medications when a person at risk comes down with influenza. To be effective, medication must be started within 48 hours after the first symptom appears. They are usually given for five days.

Amantadine only works against influenza Type A virus. Unfortunately, some viruses have become resistant to it. Amantadine can be given to children over the age of one year.

However, it cannot be given with certain medications or to people with certain health problems. Possible side effects include nausea, blurred vision, dizziness, difficulty sleeping, decreased appetite, anxiety, confusion, dry mouth, headache and constipation. These may go away during treatment. In older people, amantadine can cause more serious side effects, especially on the nervous system.

Oseltamivir, a newer antiviral medication, is effective against both influenza Type A and influenza Type B. It can be used for children over the age of one year. Oseltamivir can cause nausea, vomiting and dizziness, but these side effects may be lessened if this medication is taken with food.

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Alberta

FACT SHEET

Dealing with stress or feelings of fear because of influenza[1]

Many of us are worried about influenza. There has been a lot in the news about a potential shortage of influenza vaccine, plus a lot of discussion in the media about the dangers of avian influenza.

What can you do about it?

It is normal to feel anxious or worried about this disease. The best thing you can do is to take the advice of public health officials. See contact information on reverse side.

Are you worrying too much?

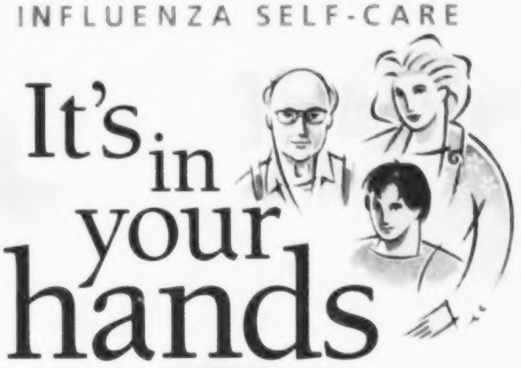
You will know you are becoming too upset if you change your daily routine when there is no need to. Signs you are worrying too much might include:

- thinking about influenza a lot.
- changing sleep habits or not wanting to get out of bed.
- eating a lot more or a lot less.
- avoiding others.
- not wanting to leave the house.
- feeling cranky and irritable, losing your temper.
- feeling anxious or depressed.
- feeling panic or having panic attacks.
- crying.
- drinking more alcohol.
- taking more prescription drugs.
- having difficulty concentrating on tasks at hand.

Talk about it

The first thing to do is talk about your feelings with someone you trust. This can be a family member, friend, religious leader or teacher. Don't be shy. It helps to get it off your chest. You can support each other. Talk about it as often as needed.

If you notice the behaviour of a loved one, friend or co-worker has changed, ask them how they are doing. Make time to talk. After you have talked, check in to see how they are doing. It shows you care and it can be a relief to both of you. Check in even if their behaviour has not changed. They may be upset but hiding it well. If you or someone you love shows signs of too much worrying for more than a week or two, you should talk with a health-care professional. They will explain what is happening and help you find ways to cope better.



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[1] Adaptation of the Mental Health Support Network of Canada "Dealing with the Stress or Fear You Might Feel Because of SARS".

Influenza and your kids

The idea of a serious world-wide influenza epidemic (pandemic influenza) can be upsetting to children and teenagers. It's important to discuss this subject with them.

Reassure and let them know they can count on you and the adults around them. Provide facts. Give them a hug, too.

If you notice a behaviour change in your kids at home or school, discuss it with them. If it's related to fear of influenza, talk about it. Tell them the truth and reassure them. If this does not work, you may want to consider consulting a health-care professional, such as your family doctor, a nurse, psychologist or social worker.

Some behaviour changes to look for include:

- changing sleep patterns.
- being tired all the time.
- eating a lot more or a lot less.
- staying in their room.
- avoiding others.
- talking less.
- being cranky and irritable, arguing or fighting more with others.
- feeling sad or anxious.
- difficulty concentrating on tasks at hand, getting poor grades.

Influenza and other traumatic events

People may feel more anxious about influenza because they are upset about other world events. This is not unusual. People who have recently experienced a sad or traumatic event may find influenza more upsetting. Traumatic events can include a car accident, the loss of a loved one, the loss of a job or a serious health problem. It's normal to feel more stressed under these conditions.

If this happens to you, talk with a friend or loved one. If symptoms continue for over a week or two, you may want to talk with a health-care professional.

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(Contact information)

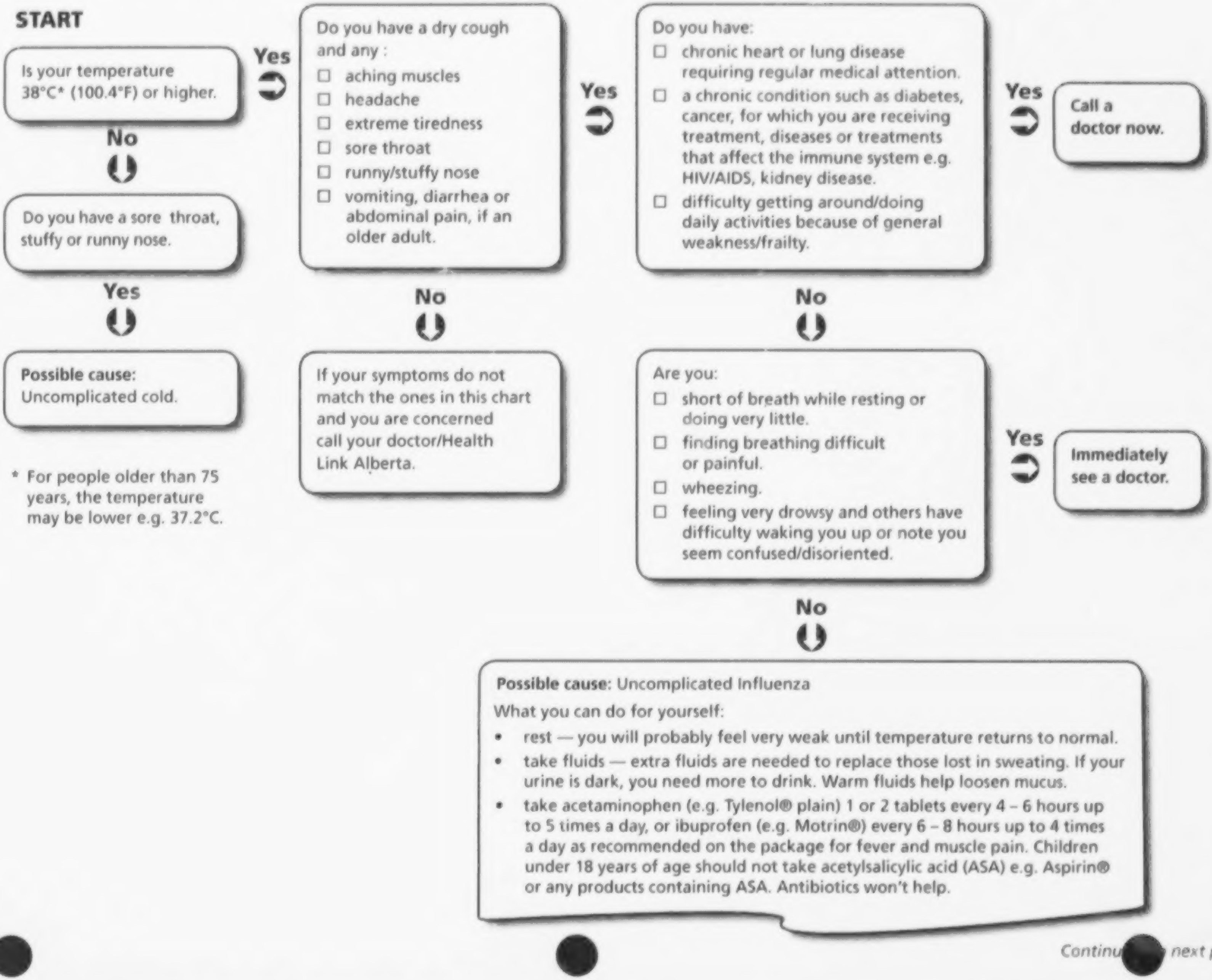
Alberta

G.

APPENDIX G
Influenza self-care algorithms

- ADULT: Do you have influenza?
- BIRTH TO SIX YEARS: Does your child have influenza?
- SIX YEARS TO ADOLESCENCE: Does your child have influenza?

ADULT: Do you have influenza?



START

Is your temperature 38°C* (100.4°F) or higher.

Do you have a sore throat, stuffy or runny nose.

Possible cause: Uncomplicated cold.

* For people older than 75 years, the temperature may be lower e.g. 37.2°C.

Do you have a dry cough and any :

- ☐ aching muscles
- ☐ headache
- ☐ extreme tiredness
- ☐ sore throat
- ☐ runny/stuffy nose
- ☐ vomiting, diarrhea or abdominal pain, if an older adult.

If your symptoms do not match the ones in this chart and you are concerned call your doctor/Health Link Alberta.

Do you have:

- ☐ chronic heart or lung disease requiring regular medical attention.
- ☐ a chronic condition such as diabetes, cancer, for which you are receiving treatment, diseases or treatments that affect the immune system e.g. HIV/AIDS, kidney disease.
- ☐ difficulty getting around/doing daily activities because of general weakness/frailty.

Call a doctor now.

Are you:

- ☐ short of breath while resting or doing very little.
- ☐ finding breathing difficult or painful.
- ☐ wheezing.
- ☐ feeling very drowsy and others have difficulty waking you up or note you seem confused/disoriented.

Immediately see a doctor.

Possible cause: Uncomplicated Influenza

What you can do for yourself:

- rest — you will probably feel very weak until temperature returns to normal.
- take fluids — extra fluids are needed to replace those lost in sweating. If your urine is dark, you need more to drink. Warm fluids help loosen mucus.
- take acetaminophen (e.g. Tylenol® plain) 1 or 2 tablets every 4 – 6 hours up to 5 times a day, or ibuprofen (e.g. Motrin®) every 6 – 8 hours up to 4 times a day as recommended on the package for fever and muscle pain. Children under 18 years of age should not take acetylsalicylic acid (ASA) e.g. Aspirin® or any products containing ASA. Antibiotics won't help.

Continu next page

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What you can do for yourself continued ...

- treat your symptoms if necessary e.g. humidifier, saline nose drops, cough suppressant if dry cough is causing discomfort or keeping you awake, decongestant, throat lozenges.
- stay home from work/school for 5 days (while you are contagious) if possible, or until you are feeling better.
- ask for help from family/friends if you live alone, are a single parent with small children etc. and are having a hard time taking care of your own/your family's needs.
- deal with fear and anxiety — talk about your feelings with family and friends.

What to expect:

- Day 1 – 3: Sudden appearance of fever, headache, muscle pain and weakness — also dry cough, sore throat and stuffed nose (but overshadowed by previous symptoms).
- Day 4: Fever and muscle aches decrease. Hoarse, dry or sore throat, cough and possible mild chest discomfort become more noticeable.
- Day 8: Symptoms decrease. Cough and tiredness may last 1 – 2 weeks or more.

During influenza, CALL YOUR DOCTOR OR GO TO EMERGENCY AT A HOSPITAL IF YOU:

- are short of breath even while resting.
- have pain in your chest when you breathe.
- have heart disease and develop chest pain.
- are coughing up bloody sputum.
- are wheezing.
- still have a fever and are not feeling better after 3 – 5 days.
- are feeling better and suddenly you develop a fever.
- are extremely drowsy or are confused/disoriented or others notice these symptoms.
- have new inability to function if an independent older person.
- have persistent vomiting, if elderly (2 – 3 times in 24 hours).

BIRTH TO SIX YEARS: Does your child have influenza?

START

Is the child's temperature 38°C (100.4°F) or higher by armpit.

Yes

Does the child have any one of the following:

☐ severe trouble breathing not caused by a stuffy nose.
☐ blue lips, sudden pallor, cold to knees.
☐ limp or unable to move.
☐ excessively sleepy, to the point of being difficult to arouse or unresponsive.
☐ full or sunken fontanel (soft spot).
☐ signs of pain; headache and/or stiff neck; eyes sensitive to light.
☐ seems confused.
☐ a seizure (fit).

Yes

Immediately, go to the hospital emergency or call 911.

No

Does the child have any one of the following:

☐ change in respiratory pattern with an increased respiratory rate and signs of labored breathing.
☐ excessive irritability and is inconsolable.
☐ listless with a loss of interest in most things e.g. playing, watching TV, eating/drinking.
☐ significantly reduced urine output i.e. voiding less often than every 6 hours while awake or have a dry diaper longer than 3 hours if under 6 months, or longer than 6 hours if 6 – 23 months.
☐ Look very ill and the caregiver is worried

Yes

Take the child to a doctor.

No

Is the child 3 months of age or under?

Yes

Call a doctor or Health Link Alberta for advice.

No

Continued on next page

No

If the child has symptoms or behavior not on this chart and you are concerned, call a doctor or Health Link Alberta for advice.

BIRTH TO SIX YEARS: Does your child have influenza?

Continued from previous page

No

Does the child have:

- ☐ chronic heart or lung disease requiring regular medical care.
- ☐ chronic illness such as diabetes, kidney disease, cancer and is receiving treatment, diseases /treatments that affect the immune system e.g. HIV/AIDS.
- ☐ a condition requiring regular use of ASA (e.g. Aspirin®)

Yes

Take the child to a doctor

No

Does the child have any :

- ☐ irritability.
- ☐ loss of appetite.
- ☐ hoarse cry.
- ☐ barking cough.
- ☐ diarrhea or vomiting.
- ☐ stomach pain.

Yes

Possible cause: Uncomplicated influenza*

To assist the child:

- ☐ Give acetaminophen or ibuprofen in the dose recommended for children on the package until the child's temperature comes down, unless your doctor says otherwise. Do not give ASA. Antibiotics will not help.
- ☐ Dress in light-weight clothing and keep room at 20°C.
- ☐ Offer cool fluids/breast feed frequently while awake.
- ☐ Avoid cool baths/alcohol rubs.
- ☐ Allow to rest. Keep home for 5 days so the virus is not spread.
- ☐ Use salt water nose drops (e.g. Salinex®) and a humidifier (unless asthmatic) to treat a stuffy nose. Teach the child to cover their mouth when they cough and then to throw the tissue away. Wash your hands often and teach the child to do so as well.
- ☐ Elevate head of bed and decrease excitement to help ease cough.
- ☐ Treat symptoms if necessary: e.g. cough suppressant for dry cough for children >2 years , only if interrupting sleep (not for asthmatics); decongestant sprays if over 6 mo.

*Usually symptoms start to clear up in 5 to 7 days.

No

If the child has symptoms/ behavior not on this chart and you are concerned, call a doctor or Health Link Alberta for advice.

SIX YEARS TO ADOLESCENCE: Does your child have influenza?

START

Is the child's temperature 38°C (100.4°F) or higher.

Yes

Is the child:

☐ short of breath while resting or doing very little.
☐ finding breathing difficult or painful.
☐ wheezing.
☐ hard to wake up, unusually quiet or unresponsive.

Yes

Immediately ake your child to be seen by a doctor.

No

Does the child have:

☐ chrpnic heart or lung disease requiring regular medical care.
☐ a chronic illness such as diabetes, kidney disease, cancer and is receiving treatment, diseases/treatments that affect the immune system e.g. HIV/AIDS.
☐ a condition requiring regular use of ASA (e.g. Aspirin®).

Yes

Call a doctor now.

No

Does the child have a dry cough and any :

☐ aching muscles.
☐ headache.
☐ extreme tiredness.
☐ sore throat.
☐ runny/stuffy nose, nose bleeds.
☐ burning eyes.

Yes

Possible cause: Uncomplicated Influenza*

What you can do for the child:

- allow the child to rest. The child will probably feel very weak until their temperature returns to normal.
- offer fluids frequently while awake — extra fluids are needed to replace those lost in sweating. If the child's urine is dark, they need more to drink.
- give the child acetaminophen (e.g. Tyleno® plain) every 4 - 6 hours up to 5 times a day, or ibuprofen (e.g. Motrin®) every 6 - 8 hours up to 4 times a day as recommended on the package for fever and muscle pain. Children under 18 years of age should not take ASA or any products containing ASA. Antibiotics won't help.
- treat the child's symptoms if necessary e.g. cough suppressant, only if dry cough is causing discomfort or interrupting sleep (not for asthmatics), salt water nose drops (e.g. Salinex®), humidity (unless asthmatic), throat lozenges, decongestant. Teach the child to cover their mouth when they cough and then throw the tissue away. Wash your hands often and teach the child to do so as well.

No

If the child's symptoms do not match the ones on this chart and you are concerned, call a doctor or Health Link Alberta for advice.

No (from START)

Does the child have a sore throat, stuffy or runny nose.

No

Possible cause:

Uncomplicated cold.

Continued on next page

Continued from previous page

What you can do for the child continued ...

- Keep your child home from school for 5 days (while they are contagious), or until they are feeling better.

What to expect:

- Day 1– 3: Sudden appearance of fever, headache, muscle pain and weakness — also dry cough, sore throat and stuffed nose (but overshadowed by previous symptoms).
- Day 4: Fever and muscle aches decrease. Hoarse, dry or sore throat, cough and possible mild chest discomfort become more noticeable.
- Day 8: Symptoms decrease. Cough and tiredness may last 1– 2 weeks or more.

During influenza, IMMEDIATELY TAKE YOUR CHILD TO SEE A DOCTOR OR GO TO EMERGENCY AT A HOSPITAL, if the child:

- is short of breath even while resting.
- Is experiencing pain in their chest when they breathe.
- is coughing up bloody sputum.
- is wheezing.
- continues to have a fever and is not feeling better after 3 – 5 days.
- is feeling better and suddenly develops a fever.
- is hard to wake up, unusually sleepy or unresponsive.

H.

APPENDIX H: Mental health during pandemic influenza

Lessons learned from Severe Acute Respiratory Syndrom (SARS)

A. Introduction

Emerging new infections exert a significant psychological impact on health-care workers (HCWs) and the community at large, which in some instances requires flexible and appropriate interventions. Compared with available literature on the biology of infectious disease, there have been considerably fewer published reports on the psychosocial impact of disease outbreaks. A search of the literature related to mental health during the Severe Acute Respiratory Syndrome (SARS) outbreak (document attached) revealed information on sources of and responses to stress made by HCWs; individuals who contracted SARS, their families and contacts, and general public which may be useful in planning a response to pandemic influenza.

B. Health-care workers

Primary sources of stress for HCWs during the SARS outbreak were:

- Persistent uncertainty related to the speed new cases occurred and knowledge was acquired leading to rapidly changing public health and infection control practices, as well as not knowing when the crisis would end.
- Additional personal risk felt by everyone in hospitals especially those with family at home, who worried about infecting loved ones.
- Health-care workers treating their friends and colleagues as patients, which greatly increased the emotional complexity of the caring relationship.
- Psychological effect of extraordinary infection control measures required within the workplace (primarily feelings of isolation), feeling scrutinized, redeployment to unfamiliar tasks and increased workload.
- Negative public reaction e.g. being asked not to take their children to day care.

Particularly vulnerable to stress were: nurses, those having contact with SARS patients, HCWs with children (especially single parents), part-time employees, younger staff members, those whose lifestyle was affected by the SARS outbreak, HCWs whose ability to do their job was affected by precautionary measures and individuals who had difficulty sharing thoughts and feelings.

Restorative sleep may be the first casualty of such an outbreak for all concerned. Bad dreams, fatigue, pre-occupation with personal health, strained family relations and changes in weight were other indications of stress. For most staff, the most significant stress came with the second wave of cases.

The SARS experience showed HCWs are a very resilient group of professionals, who can perform well in a difficult situation if they:

- are well informed. The need to reduce meeting in groups necessitated alternate modes of communication e.g. email, intranet, phone-in lines, conference calls. Daily emails to staff provided new information about the virus, rationale for infection control measures, training about those precautions, updates on the number of SARS cases, etc.
- feel safe and protected.

- feel well supported practically e.g. reassurance that their livelihood was not at risk if they were not able to work owing to illness or infection control precautions; shortened work hours and adequate training and supplies. Providing accommodation would benefit those who are afraid of infecting loved ones.
- feel well supported emotionally e.g. establishing healthy working relationships prior to the crisis; sensitivity to individual responses to stress; mitigating the psychological impact of infection control procedures, especially interpersonal isolation. Support services for staff need to be flexible, collegial, varied and unintrusive. Some of these services should include stress management programs, critical incident stress management and peer support programs. Education about the impairment that results from sleep deprivation and how to treat insomnia is essential.
- feel listened to and respected. Expert responses to questions from staff were included in daily all-staff emails. Managers communicated with staff and relayed their concerns back to senior management. Senior management visited units to answer staff questions at critical times.

Hospital's response required clear communication, collaboration between disciplines, authoritative leadership and provision of relevant support. Effective risk communication is a priority early in an outbreak. HCWs may have a role in influencing patterns of media coverage that increase or decrease morale.

C. Individuals infected with SARS and their contacts

Emotional responses of patients with SARS included:

- Insomnia as a result of medications, anxiety, physical discomfort and hospital routines.
- Fear, anxiety and discouragement related to elevated body temperature.
- Guilt, anger and fear for the welfare of friends and family with whom they were in contact.
- Loneliness, sadness and boredom from isolation, which meant that outside communication was available only by phone and sometimes email.
- Concern around child-care issues for single parents with SARS who had children in quarantine.

- Worsening of pre-existing marital tensions.
- Concern by HCW patients about infectious risk to staff caring for them.

Family members found it difficult that they could not provide direct support to sick relative by visiting.

Health care interventions included:

- emphasizing a wide range of emotional responses is to be expected in the face of such an extraordinary situation. Concerns and feelings expressed were interpreted as expected, normal responses.
- pharmacological and behavioural interventions to treat insomnia.
- supportive psychotherapy, when indicated and desired, aimed to balance expression of feeling with pragmatic attention to particulars of the patients' external reality (e.g. shopping assistance, measures to decrease social isolation such as access to Internet, newspapers etc.).
- attention to issues of powerlessness and the conflicting responsibilities of roles for the patients who were both parents and HCWs.
- identifying families needs, offering an opportunity to express feelings, and supporting effective coping strategies to enhance the families' sense of competence and control.

In situations requiring specialist assistance, psychiatric staff provided face-to-face consultation with the patient and the medical team provided ongoing monitoring. All patients with an adjustment disorder received telephone contact from psychiatry, followed by liaison with the treatment team and family. Telephone counselling aimed at giving patients skills to alleviate symptoms of distress and teaching the family ways to convey support.

Palliative care service staff noted that isolation procedures meant the patient suffered a loss of self-esteem (feeling treated as a prisoner) and a loss of autonomy (could not decide where he died or who would be present). Family was not allowed to visit unless the patient was deemed seriously ill, then they had to don protective equipment, touching was not permitted and they could only visit one at a time. Good comfort care and psychosocial support/advocacy were difficult with limited touching, communicating through masks etc. As the nature of the disease was uncertain, prognostication was inaccurate. This created difficulties in helping patients and their families prepare for death. The process of bereavement was disrupted as traditional death rituals could not be performed by the family.

HCWs suffered the same anxieties, fears and grief as the patients, if their own relatives and friends were ill or died.

HCWs were concerned about the psychosocial impact on children and families of wearing masks in stressful situations (nonverbal communication is impaired and lip-reading is impossible). This can be particularly significant for people for whom English is a second language and those who are hearing impaired.

Hospital in-patients without SARS were concerned about becoming infected. Restrictions on transfer to other institutions, cancelled procedures, the need for quarantine upon discharge or delayed discharge were common frustrations. Patients deprived of family visits experienced insomnia, anxiety and interpersonal friction with staff. Limited access to external resources resulted in difficulty obtaining items that would usually provide comfort such as books and music. Asian patients reported stigmatization in the community, because the outbreak was thought to have originated in China.

The hospitals developed patient and visitor letters, posters and information sheets. They concluded that there was a need to make greater use of the intranet and Internet for communicating with staff, patients and public. There was also a need to find more effective ways to engage physicians and their assistants as communicators, especially when there are changes in normal practices such as patient screening and restrictions placed on visitors. Finally, there was a need for more emphasis on effective use of signage — too many signs lose their impact.

Preliminary evidence suggests patients have difficulties resuming activities of daily living after discharge because of fatigue and residual symptoms and that they may be at risk of stress-related anxiety and depressive disorders. In Hong Kong, approximately 20 per cent of rehabilitated patients showed some negative psychological effects such as insomnia and depression. Some patients could not rid themselves of the memories of fighting SARS and these memories disrupted their daily activities. Persons who took ribavirin and corticosteroids had hair loss, major memory loss, impaired concentration and depression.

In addition to SARS patients, an estimated 50 per cent of family members of SARS patients had psychological problems including feelings of depression or stigmatization. They had difficulties sleeping, and some children who had lost parents cried continuously. Some children also felt embarrassed to be a member of a SARS family. The loss of parents who were SARS patients also impaired the growth of their children.

Quarantine may create heavy psychological and financial problems for some persons. To be effective, quarantine requires at risk persons be isolated and they follow appropriate infection control measures. A survey of individuals quarantined in Toronto indicated stress increased with longer durations of quarantine, acquaintance with or direct exposure to someone with a diagnosis of SARS and a low combined annual income of the household.

All quarantined individuals described a sense of isolation. Lack of physical contact with family members was particularly difficult and not being able to shop for necessities of everyday life was a concern. Infection control measures imposed physical discomfort of having to wear a mask and in some, self-monitoring of temperature provoked considerable anxiety. Following quarantine, 51 per cent had experiences that made them feel people were reacting differently to them.

As many as 50 per cent of respondents felt they had not received adequate information regarding at least one aspect of home infection control and not all respondents adhered to recommendations. A combination of a lack of knowledge, an incomplete understanding of the rationale for these measures and a lack of reinforcement from an overwhelmed public health system were likely contributors to this problem. Strictly adhering to infection control measures, including wearing masks more frequently than recommended, was associated with increased levels of distress.

D. General public

Learning more about public concern, knowledge, attitudes and behaviour during an outbreak of infectious disease can be crucial to improving communication efforts by public health officials and clinicians in response to such outbreaks.

Prior research has shown that anxiety and misperception, at the extreme, can cause instances of panic flight from the outbreak area or refusal to comply with quarantine efforts. Public reaction to past outbreaks has also had other negative consequences, including unnecessary or overwhelming demand for health-care services; inordinate or erroneous precautionary behaviour; avoidance of places and activities that bear a low risk of infection, with resulting negative effect on the community and its economy; inappropriate refusal or demand for vaccination, stemming from misinformation about the safety and effectiveness of vaccines; and avoidance of hospitals and health-care facilities out of fear of becoming infected by others. Another problem associated with the fear of becoming infected has been discrimination against groups of people perceived to be "at- risk" even if few people in those groups are actually contagious. Studies have shown that in times of perceived epidemic threat, public places its greatest trust in clinicians.

If people are to respond appropriately during an outbreak of infectious disease, they need to have some basic knowledge of how the disease is spread and whether there is a vaccine against the disease or an effective medical treatment once someone contracts the disease. Individuals in Hong Kong did not recognize that infection could be transmitted through contact with contaminated objects. Respondents with higher risk perceptions and a moderate level of anxiety were most likely to take comprehensive precautionary measures against the infection, as were older individuals, females, more educated people and those with a positive contact history and SARS-like symptoms. Continuing public education about preventive measures should be targeted at the identified groups with low current uptake of precautions (i.e. younger, less educated males). Perhaps targeting health promotion messages through intermediaries of female significant others (e.g. mothers, wives or girlfriends) would be worth exploring. Sustained interventions towards changing social norms yield the most effective results.

Mortality was very high (over 50 per cent) for older people infected with SARS in Hong Kong. In addition, older people often suffered from chronic physical illness, necessitating visits to hospitals and outpatient clinics, where there was a higher chance of contracting SARS. Many older persons defaulted treatment and follow-up with negative consequences. A negative image and stigma was imparted to older persons by the SARS epidemic. Most elderly nursing home residents knew little regarding SARS and prevention strategies, despite access to outside news by TV, radio and visitors. Tailored education programs to promote awareness and prevention of SARS for the elderly are needed. More in-service training and support are indicated for staff to promote disease prevention and improve quality of care.

In an ideal world, news media would be more effective at conveying the level of risk and the relative need for precautions in high-risk vs. low-risk areas. In future, one way to do this would be to work with local broadcast journalists in advance of a threat to ensure they know who to contact for up-to-date, credible information.

In Edmonton, Alberta, a telephone information service staffed by nurses, Health Link, proved to be an invaluable service in responding to questions about SARS. Residents and community physicians were regularly advised through media and other communication channels that Health Link was their first contact if they suspected an individual had SARS. The intent was to avoid having people enter emergency departments or physicians' offices and potentially infect other people. This helped address staff concerns and manage any internal issues around safety. Health Link also proved to be an excellent tool for gauging public concern about SARS.

Through Health Link the Edmonton region was able to deal with cultural and language differences e.g. setting up a special line for residents who speak Cantonese and advertising it in the Chinese community. Signs were posted at hospitals as well as at the airport, outlining necessary steps to take if people had certain SARS-like symptoms. Physicians, with large numbers of patients from high-risk groups also received copies of the protocol, printed in a variety of languages. Work with media was coordinated through the region's Public Affairs Office, under the leadership of the medical officer of health to ensure consistent messages were sent out.

In a situation like SARS, the circle of who needs to receive communication outside of the health-care system should be broadly defined e.g. the education system had questions around accepting foreign students and school trips planned to regions with SARS and other major organizations and large employer groups started to seek information.

Public health strategies require a delicate balance between protecting the public's health and initiating exclusionary practices and treatments that can lead to fear and stigmatization of, and discrimination against certain populations. Mitigating fear and discrimination directed toward persons infected with and affected by infectious disease can be important in controlling transmission. Persons who are feared and stigmatized may delay seeking care and remain in the community undetected. Such fear can increase stigmatization when cases are identified at a later date. Stigmatization has social and economic ramifications that intensify feelings of fear.

Containing fear is best accomplished by a behavioural strategy that addresses the needs of the population at risk of being stigmatized as a complement to a larger public health education and communication campaign. Communication techniques for the general public most frequently involve television sound bites, press conferences with dignitaries and health officials, and targeted release of information to mass media outlets such as newspapers and internet sites. Although these risk communication strategies are critical for keeping public informed during an outbreak, they can fail to meet the personal needs of general public and the affected population.

A multidisciplinary Community Outreach initiative was undertaken in the United States to rapidly assess, monitor and address fears associated with the SARS epidemic, in which Asian-American communities were particularly affected. The team monitored stigmatization ideas and behaviours in the general population and the media toward Asian Americans. Situational assessment included facilitating group discussions (teleconferences) with national, state and local influential leaders within the Asian community in the U.S.; monitoring the Public Response Service data; monitoring Asian-language newspapers Internet sites; conducting community visits, panel discussions and media interviews; soliciting information from regional minority health liaisons nation-wide; developing ongoing relationships with Asian American communities, particularly in metropolitan areas etc.

The team response included:

- working with Asian American communities to develop a culturally tailored intervention that promoted communication and understanding of the facts related to the transmission and prevention of SARS (Asian-language materials, web-based information, educational hot line messages);
- conducting community visits, panel discussions and media interviews to provide evidence-based information and act as a catalyst for bringing together a broad spectrum of organizations and persons in the community to create local networks to build community resiliency and capacity to mitigate fear;
- encouraging appropriate health-seeking behaviours for those who may have been exposed to SARS.

The team also worked to keep general public better informed, prevent discrimination against SARS-affected communities and provide guidance for organizations hosting international visitors from SARS-affected countries and other SARS emergency response teams on how to minimize the risks of stigmatizing groups.

E. Future directions

The report of Canada's National Advisory Committee on SARS and Public Health urges that the psychological well-being of health care workers who deal with disease outbreaks, the responses of public and outcomes of intervention programs need to be set as priority areas of research. Three elements are needed in future psychosocial research on the effect of infectious disease.

- A systemic perspective. It is important to determine the effects of disease on often unseen populations such as family members, non-medical staff, medical colleagues in the community and public, as well as patients and HCWs.
- Prospective research. Because psychological effect may persist or evolve over time, longitudinal studies will allow an assessment of the important determinants of psychological distress as well as protective effects of certain coping strategies, with potential application in early identification of cases requiring more intervention.
- Evaluation of outcomes of psychosocial interventions.

Enhancing psychological well-being of HCWS, their families and community is a crucial tool in the continuing vigilance and fight against emerging infectious disease.

*The literature review, *Mental Health During the Severe Acute Respiratory Syndrome Outbreak: Stress and Coping and Lessons Learned (April 2005)* and the fact sheet: *Dealing with Stress of Feelings of Fear Because of Pandemic Influenza* are attached.

ATTACHMENT:

Mental health during Severe Acute Respiratory Syndrome (SARS)

Stress, coping and lessons learned

A. Introduction

Emerging new infections such as Severe Acute Respiratory Syndrome (SARS) exert a significant psychological effect on health-care workers (HCWs) and the community at large, which in some instances requires flexible and appropriate interventions. Compared with available literature on the biology of infectious disease, there have been considerably fewer published reports on the psychosocial impact of disease outbreaks. A preliminary search of English literature was conducted in October 2004 employing PubMed health literature database and using the search term SARS, to determine if there was any literature related to mental health during the SARS outbreak. This document reviews findings of observations made during and following the SARS outbreak on sources of and responses to stress made by HCWs; individuals who contracted SARS, their families and contacts, and general public. These observations may be useful in planning a response to other infectious outbreaks, such as pandemic influenza.

B. Health-care workers

There was little precedent in medical literature by which to anticipate and respond to psychological effects of the infection within SARS-affected hospitals. Although psychological stress caused by large-scale events such as natural disasters and hostile acts has been described, there were features of the SARS outbreak that make it unlike other stressors. It was known from a study of an outbreak of vancomycin-resistant enterococci within a hospital in Australia, that nurses could be substantially burdened, and factors contributing to the burden included feeling inadequately supported, blamed for the outbreak and resentful of the increased workload. Feelings of alienation and isolation were also noted. Beyond those clues, efforts to deal with psychological stress of HCWs in the SARS-affected hospitals were, of necessity, guided by general principals of stress response and adaptation, availability of local resources and flexible responsiveness to emerging patterns of psychological resilience and vulnerability. The severity of psychological burden that SARS would place on HCWs, was not clear at the onset of the outbreak[1].

1. Canada (Toronto)

a. Mount Sinai Hospital[1]

In Mount Sinai Hospital, a large teaching hospital in Toronto, during the peak of the first SARS outbreak (April 2003), almost two thirds of staff surveyed reported increased levels of concern for personal and family health, and almost one third of a subset tested had scores indicating emotional distress. A discussion of "stress" implies an event and a response to that event. The 2003 SARS outbreak was an extraordinary event in the life of Toronto hospitals and in the lives of HCWs because of:

- The speed new cases occurred and knowledge was acquired leading to rapidly changing public health and infection control practices (for which the rationale was not always readily apparent) created persistent uncertainty, which is always a source of stress.
- Additional personal risk felt by everyone in hospitals (visitors, patients, volunteers, staff), especially those with family at home, who worried about infecting loved ones as well as becoming ill themselves.
- Health-care workers treating their friends and colleagues as patients, which greatly increased emotional complexity of the caring relationship.

- Psychological effect of extraordinary measures required within the workplace e.g. workers felt highly scrutinized by hospital screening, self-monitoring, media attention; some workers were quarantined with attendant feelings of isolation and others were redeployed to unfamiliar tasks in special SARS units.
- Negative public reaction e.g. being asked not to attend family functions, take their children to day care, or show up for haircut or dental appointments.

Stress felt by staff was often intense as noted in anecdotes of poor sleep, bad dreams, pre-occupation with personal health, strained family relations and changes in weight. Not knowing when the crisis would end brought with it a sense of frustration and fatigue that went beyond immediate effects of the task at hand. For many staff, the most significant stress came not with the first occurrence of the outbreak, when adrenalin was high, but with the resurgence of the second wave of cases. It appears stress was put in its place once the crisis passed, but further study of the effects of SARS on burnout, staff turnover, and recruitment for front-line and critical care positions is needed.

The SARS experience showed HCWs are a very resilient group of professionals, who can perform well in a difficult situation if given the best support available:

- People perform better and feel more secure if they are well informed. Daily emails to staff provided new information about the virus, rationale for infection control measures, training about those precautions, updates on the number of SARS cases, status and means of virus transmission etc.
- Professionals are better able to do their jobs when they feel safe and protected. This was a particular challenge with an uncharacterized pathogen.
- People face challenges more effectively if they feel well supported practically and emotionally e.g. providing adequate supplies of gowns and masks and short screening lineups, as well as establishing healthy working relationships prior to the crisis.
- Communication is vital. The need to reduce meeting in groups necessitated alternate modes of communication — email, intranet, phone-in lines, conference calls — to keep staff feeling informed and included.

- People perform better and feel less stress if they feel listened to and respected. Expert responses to questions from staff were included in daily all-staff emails. Managers communicated with staff and relayed concerns back to senior management. Senior management visited units to answer staff questions at critical times.
- Professionals are good at what they do and feel most confident if they are provided with an environment in which they can effectively do the jobs at which they are most expert e.g. lack of adequate supplies and re-deployment to unfamiliar areas will contribute to stress.

The Mount Sinai experience suggests psychiatry may have a special role to play in supporting institutional leadership during an outbreak, especially through assessment of special staff and patient needs, and the organization of a supportive institutional response. The paramount importance of a few frequently recurrent clinical themes were apparent in the early days of the outbreak:

- Restorative sleep may be the first casualty of such an outbreak for all concerned. It merits aggressive attempts to educate staff and patients about the impairment that results from sleep deprivation and how to treat insomnia.
- Most people cope very well in their own way and benefit a great deal from a relatively small quotient of shared concern, good information and support. When facing such a crisis, it is crucial to feel one is not alone.

The hospital's response required clear communication, sensitivity to individual responses to stress, collaboration between disciplines, authoritative leadership and provision of relevant support. Support services for staff need to be flexible, collegial and unintrusive. There is an opportunity for leadership by example, when leaders advocate and use peer support.

b. Survey of three Toronto hospitals[2]

A survey of 1,557 HCWs from three Toronto hospitals in May and June 2003 estimated a high degree of stress was experienced by 36 per cent of hospital workers. Three categories of contributory factors were identified:

- Contextual factors (impact on particular groups of HCWs)
    - being a nurse
    - having contact with SARS patients

    - having children (worry about passing on infection, stigma that might be experienced by family members and how children would be cared for if the HCW-parent was hospitalized or quarantined.) Concern was even greater for single parents.
- experiencing mediating attitudes and coping factors
    - job stress (e.g. being assigned to unfamiliar tasks, increases in workload and overtime, financial concerns for those no longer permitted to work at more than one hospital)
    - perceiving stigmatization (perception that they or their families were being avoided by others e.g. by cancelling appointments or social engagements)
    - coping by avoiding crowds and colleagues (HCWs were isolated from their peers, families and communities e.g. access to hospital was restricted, cafeteria closed, meetings with colleagues in and outside of hospitals discouraged, handshaking was not allowed, conversation was through protective equipment, one metre distance was maintained between individuals.)
    - feeling scrutinized (by hospital screening, own hyper-vigilance, media.)
- pre-existing trait factors
    - attachment insecurity (dependence on their partner and difficulty sharing thoughts and feelings.)

While uncertainty and fear are probably inherent in any large-scale stressor, what may be more peculiar to the stressful effect of an emerging infectious disease is the interpersonal isolation that results from the nature of the threat itself (i.e. stigma and avoidance of contact) and from the nature of efforts to contain the threat (i.e. isolation precautions). Social support is known to be one of the most effective buffers against adverse effects of life stress and so the isolating effects of SARS may have been its most potently provocative feature.

Lessons learned from the outbreak include:

- Effort is needed to mitigate psychological effect of infection control procedures, especially the interpersonal isolation that these procedures promote.
- Effective risk communication is a priority early in an outbreak.

- HCWs may have a role in influencing patterns of media coverage that increase or decrease morale.
- HCWs benefit from resources that facilitate reflection on effects of extraordinary stressors.
- HCWs benefit from practical interventions that demonstrate tangible support from institutions e.g. reassurance their livelihood is not at risk if they are not able to work owing to illness or infection control precautions, adequate training and supplies.

c. Sunnybrook and Women's College Health Sciences Centre[3]

In a survey of 2001 employees of Sunnybrook and Women's College Health Sciences Centre, a large tertiary care center, April 2003, two thirds of respondents reported concern for their own or their family's health and 29 per cent of scores indicated probable emotional distress (rate among nurses was 45 per cent). Masks were reported to be the most bothersome infection control precaution (physical discomfort most sited).

Four factors were significantly associated with increased levels of concern for personal or family health: perception of greater risk of death from SARS; living with children; personal or family lifestyle affected by SARS outbreak (e.g. avoiding public spaces, and avoiding interaction with family and friends) and being treated differently by people because of working in a hospital.

Four factors were significantly associated with emotional distress: being a nurse; part-time employment status; lifestyle affected by SARS outbreak and ability to do one's job affected by precautionary factors.

Positive effects reported by over half of respondents included an increased awareness of disease control, finding the SARS outbreak to be a learning experience and an increased sense of togetherness and cooperation. Other positive effects included being less busy than usual and feeling a greater appreciation of life and work.

Three factors were associated with decreased levels of concern: working in a management position, belief that the precautionary measures in the workplace were sufficient and being 50 years of age or older.

d) University of Toronto[4]

Students were feeling frustration about suspension of their education and research activities as the University of Toronto cancelled some activities involving students in the health sciences at its affiliated teaching hospitals.

2. Hong Kong[5]

During April and May 2003, a survey of 271 HCWs from SARS units and 342 healthy control subjects was conducted in Hong Kong. Stress levels were raised in both groups, but not relatively increased in HCWs. HCWs appeared to be protected from stress, with significantly more positive psychological effects than were observed in control subjects (positive responses included awareness of hygiene, focus on current affairs, unity and awareness of danger). Negative sequelae included tiredness, worry about health and fearing social contact. HCWs confident about infection control had lower stress levels and lower negative effects.

3. Singapore

A cross-sectional survey was conducted on 91 doctors and 186 nurses working within a public, primary health-care setting in Singapore in July 2003 to determine the level of psychological effect and coping styles. Psychiatric morbidity and post traumatic morbidity were found in 20.6 per cent and 9.4 per cent respectively. Psychiatric morbidity was associated with post traumatic morbidity and denial, whereas post traumatic morbidity was associated with younger age, being married, psychiatric morbidity, self-distraction, behavioural disengagement, religion, less venting, less humour and less acceptance. Direct exposure to SARS was not associated with psychiatric morbidity. Some major concerns were dread of losing control of the spread of SARS, fear of catching SARS, fear of passing it to loved ones and fear of death. Major sources of help included provision of SARS-related information, infection control guidelines and their implementation as well as support from family and friends. Researchers suggest that findings support directing the focus of SARS-related psychological support efforts toward education about its psychological effects, facilitation of peer support groups, and enhancement of more adaptive personal coping styles, especially in younger and married staff. Research is needed on unseen populations such as families of HCWs.[6]

A survey was undertaken to describe psychological effect of SARS on doctors and nurses in a medium sized regional hospital in Singapore, two months post-outbreak. Twenty seven percent of 661 participants had psychiatric symptoms. There was no significant difference between those who were not exposed to SARS patients and those working in high-risk areas or in general wards. Single HCWs and doctors were at higher risk. Those who felt work had become more important as well as those who agreed that support from supervisors/colleagues and clear communication of directives/precautionary measures helped them to cope better, were less likely to develop psychiatric symptoms. Twenty per cent had scores indicating post-traumatic stress disorder (PTSD). Those who perceived they were obtaining support from supervisor/colleagues were least likely to have PTSD. Respondents noted their own health and their relationship with their families, relationship with friends and colleagues, their work and their religious beliefs had become more important. Current research has signaled the importance of stress in the context of the organization where job tasks and job roles, patterns of communication and cultural norms are key factors in reducing worker stress. Researchers conclude support services are essential if HCWs' stress and needs are to be addressed. These should be flexible, collegial and varied in form. Some of these services should include stress management programs, critical incident stress management and peer support programs.[7]

4. Taiwan[8]

A study of stress reactions among 338 staff members in a 2,500 bed psychiatric teaching hospital in Taiwan indicated 5 per cent suffered from an acute stress disorder, for which quarantine was the most related factor; 20 per cent felt stigmatized and rejected in their neighbourhood; 15 per cent did not go home after work during the outbreak for fear of infecting their family and 9 per cent reported reluctance to work or had considered resignation. In contrast to administrative personnel, HCWs experienced significantly more insomnia, exhaustion and uncertainty about frequent modifications to infection control procedures. Findings suggest there is a role for providing accurate and timely SARS information to HCWs and the public to reduce uncertainty and minimize stigmatization of HCWs. Providing suitable accommodation to HCWs would benefit those who are afraid of infecting loved ones. Results highlight the value of shortened work hours to decrease stress and the value of unambiguous information. There was clearly a need for more psychological support and follow-up programs for HCWs. Organizations need to develop and integrate administrative and psychological responses to occupational and psychological challenges caused by future outbreaks of this nature.

C. Individuals infected with SARS and their contacts

1. Canada

a. Mount Sinai Hospital[9]

Unstructured interviews and informal observations of patients with SARS at Mount Sinai Hospital were made during the first four weeks of the SARS outbreak. Generally, more psychosocial support was required for patients with mild-to-moderate symptoms, and these patients were in the majority. Shortly after admission, recent contacts who required quarantine were identified, resulting in feelings of guilt, anger and fear for the welfare of friends and family. Patients with SARS often had to spend several hours alone between brief contacts with staff. Outside communication was available by phone and sometimes email. As a result, patients with mild symptoms complained of boredom and loneliness.

The most common symptoms of SARS were fever, myalgia, cough and fatigue. Medication (ribavirin) caused uncomfortable side effects, especially nausea. Insomnia was common as a result of treatment with corticosteroids, anxiety, physical discomfort and hospital routines. Each patient's temperature was monitored carefully by staff and patients to indicate disease progression. Several patients who experienced waxing and waning anxiety throughout their hospitalization, reported peaks of anxiety coincided with feeling feverish or learning of an elevated temperature. Other patients reported feeling discouraged and frightened by the return of fever after an a-febrile period.

Most patients expressed sadness about missing loved ones. HCW patients expressed concern about infectious risk to staff caring for them. Fear of potential lethality of the illness and anger because their risk of infectious exposure had not been recognized earlier, were voiced less often than other concerns.

Family members at home found it difficult that they could not provide direct support to their sick relative by visiting. Child-care issues for single parents with SARS who had children in quarantine, and management of pre-existing marital tensions were recurrent difficulties.

Patients with SARS received an initial visit from the psychiatric clinical nurse specialist, consultation-liaison psychiatrist and/or social worker. In these screening assessment interviews, it was emphasized that a wide range of emotional responses is to be expected in the face of such an extraordinary situation. Concerns and feelings expressed were interpreted as expected, normal responses. Immediate concerns were reviewed, especially the patient's family situation, relationships with people on his or her "contact list," expectations and fears about their own medical condition and current symptoms.

When indicated and desired, subsequent supportive psychotherapy aimed to balance a permissive approach to expression of feeling with pragmatic attention to particulars of the patients' external reality (e.g. shopping assistance, measures to decrease social isolation such as access to Internet, newspapers etc.). For patients who were both parents and HCWs, particular attention was given to issues of powerlessness and conflicting responsibilities of these two roles.

Identifying families needs, offering an opportunity to express feelings, and supporting effective coping strategies helped enhance the families' sense of competence and control.

Pharmacological and behavioural interventions to treat insomnia were used extensively.

Hospital in-patients without SARS were concerned about becoming infected. Restrictions on transfer to other institutions, cancelled procedures, need for quarantine upon discharge or delayed discharge were common frustrations. Patients deprived of family visits experienced insomnia, anxiety and interpersonal friction with staff. Limited access to external resources resulted in difficulty obtaining items that usually provide comfort such as books, music and toiletries. Asian patients reported stigmatization and racist reactions in the community, because the outbreak was thought to have originated in China.

The hospital utilized patient and visitor letters. It concluded there was a need to make greater use of intranet and Internet for communicating with staff, patients and public. There was also a need to find more effective ways to engage physicians and their assistants as communicators, especially when there are changes in normal practices such as patient screening and restrictions placed on visitors. Finally, there was a need for more emphasis on effective use of signage — too many signs lose their impact.[10]

b. The Hospital for Sick Children — Toronto[11]

In Toronto, staff at The Hospital for Sick Children, were concerned about psychosocial effect on children and families of wearing masks in stressful situations (nonverbal communication is impaired and lip-reading is impossible. This can be particularly significant for people for whom English is a second language and for those who are hearing impaired). Staff wore N95 masks as did patients at high risk. Most patients and families wore surgical masks. There were concerns about miscommunications and perceptions of inequality based upon types of masks worn. Posters and information sheets were used that explained the benefit of wearing masks, web-based communication was used to share information with families and a psychosocial team was established to address needs of staff and patients. Note: a "Tip Sheet" on wearing masks for staff and one for families is included in the article.

c. Community Quarantine (Toronto)[12]

For the greater public good, quarantine may create heavy psychological, emotional and financial problems for some persons. To be effective, quarantine demands at risk persons be isolated and they follow appropriate infection control measures within their place of quarantine. One hundred twenty nine quarantined persons who responded to a web-based survey in Toronto, exhibited a high prevalence of psychological distress. Symptoms of PTSD and depression were observed in 28.9 per cent and 31.2 per cent of respondents respectively. Longer durations of quarantine were associated with an increased prevalence of PTSD symptoms. Acquaintance with or direct exposure to someone with a diagnosis of SARS was also associated with PTSD and depressive symptoms. There was a trend toward increasing symptoms of PTSD and depression as the combined annual income of the household fell.

All respondents described a sense of isolation. The mandated lack of social and physical contact with family members (especially the latter) were identified as particularly difficult. Confinement within the home or between work and home, not being able to see friends, not being able to shop for necessities of everyday life, and not being able to purchase thermometers and prescribed medications enhanced their feeling of distance from the outside world. Infection control measures imposed not only the physical discomfort of having to wear a mask but also significantly contributed to the feeling of isolation. In some, self-monitoring of temperature provoked considerable anxiety. While most quarantined persons (60 per cent) did not believe they would contract SARS, 59 per cent were concerned they would infect their family members. In contrast, only 28 per cent were concerned a quarantined family member would infect someone else in the home. Following quarantine, 51 per cent had experiences that made them feel people were reacting differently to them.

As many as 50 per cent of respondents felt they had not received adequate information regarding at least one aspect of home infection control (e.g. inadequate information on SARS, with whom they could have contact, when to change masks, use and disinfection of personal items such as toothbrush, cutlery, phone) and not all respondents adhered to recommendations. A combination of lack of knowledge, an incomplete understanding of the rationale for these measures and lack of reinforcement from an overwhelmed public health system were likely contributors to this problem. Of interest, strictly adhering to infection control measures, including wearing masks more frequently than recommended, was associated with increased levels of distress.

Public health officials, infection control practitioners and mental health workers must work to define factors which influence success of infection control practice for both disease containment and community recovery and must be prepared to offer additional support to persons who are at increased risk for adverse psychological and social consequences of quarantine.

2. Hong Kong

Seventy-nine SARS patients were recruited from two major hospitals in Hong Kong during April and May 2003 and compared with 145 healthy controls.[13] Both groups demonstrated increased stress levels with both positive (awareness of hygiene, focus on current affairs, awareness of physical state, civic mindedness, caring for others, being fortunate and willing to help) and negative (worry about health, finances, stigmatization) responses. General stress and negative psychological effects were increased in SARS patients, particularly among infected HCWs. Patients reported fatigue, poor sleep, weepiness, loneliness, boredom, poor concentration, depressed mood, nightmares and impaired judgment. Stress increased with age in healthy controls.

Researchers suggest there is a need for public education as most perceived the risk and transmissibility of SARS to be unduly high. Preliminary evidence suggests patients have difficulties resuming activities of daily living after discharge because of fatigue and residual symptoms and they may be at risk of stress-related anxiety and depressive disorders. HCWs need access to psychological services.

During the SARS outbreak in Hong Kong, 10 SARS patients with psychiatric complications were referred to the Consultation and Liaison Psychiatry Team for assessment and management[14]. Both direct and indirect effects of SARS such as symptom severity, total isolation and administration of steroid were probable causes of psychiatric complications. Behavioural disturbances and psychotic symptoms can lead to non-compliance with infection control procedures. Clinicians were wary about non-essential personnel (including psychiatrists and psychologists) visiting the bedside unless it was absolutely necessary. When psychiatric treatment and medication were required, face-to-face consultation with the patient was provided with close monitoring of symptoms by the medical team. All patients with an adjustment disorder received telephone contact followed by liaison with the treating physicians and nurses and family. Telephone counselling aimed at giving patients skills to alleviate symptoms of distress and at teaching the family ways to convey support. Patients with steroid-induced psychiatric disturbances were prescribed a low dose of neuroleptic medication (haloperidol) and symptoms subsided in three to four days.

Evidence suggests persons infected with SARS recovered physically, but SARS is associated with social and psychological problems poorly, understood by the scientific community. A survey of a convalescent hospital in Hong Kong[15] showed approximately 50 per cent of SARS patients showed anxiety and approximately 20 per cent were fearful. Approximately 20 per cent of the rehabilitated patients showed some negative psychological effects such as insomnia and depression. Some patients could not rid themselves of memories of fighting SARS and these memories disrupted their daily activities. These psychological problems may be due to complications of SARS medications, such as ribavirin and corticosteroids. Persons who took these drugs had hair loss, major memory loss, impaired concentration and depression.

In addition to SARS patients, an estimated 50 per cent of family members of SARS patients had psychological problems including feelings of depression or stigmatization. They had difficulties sleeping, and some children who had lost parents cried continuously. Some children also felt embarrassed to be a member of a SARS family. The loss of parents who were SARS patients also impaired the growth of their children. A study conducted in China reported that negative SARS-related information increased a person's perception of their risk and led to irrational nervousness or fear.

3. Singapore

A qualitative study using semi-structured interviews was undertaken by palliative care service staff at Tan Tock Seng Hospital[16](the hospital designated to manage all SARS cases in Singapore) to determine the spiritual and psychosocial effect of SARS on patients, their families and HCWs. The study indicated the following:

- Disease containment strategies resulted in isolation, where isolation meant disruption of connectedness:
    - in the patient e.g. loss of self-esteem (feeling treated as a prisoner) and a loss of autonomy (couldn't decide where or who will be present should death occur).
    - between patient and family e.g. family was not allowed to visit unless the patient was deemed seriously ill, then they had to don protective equipment and touching was not permitted.
    - within the family e.g. family could only visit one at a time and not support each other during grief.
    - between patient and HCW e.g. good comfort care and psychosocial support/advocacy were difficult with limited touching, communicating through masks etc.
    - between patient and society e.g. some were stigmatized, or could not return to former occupations.
    - between HCWs.
- As the nature of the disease was uncertain, prognostication was inaccurate. This created difficulties in helping patients and their families prepare for death.
- The bereavement process was disrupted as traditional death rituals could not be performed by the family.
- HCWs suffered the same anxieties, fears and grief as the patients if their own relatives and friends were ill or died.

D. General public

Learning more about public concern, knowledge, attitudes and behaviour during an outbreak of infectious disease can be crucial to improving communication efforts by public health officials and clinicians in response to such outbreaks.

Prior research has shown that anxiety and misperception, at the extreme, can cause instances of panic flight from the outbreak area or refusal to comply with quarantine efforts. Public reaction to past outbreaks has also had other negative consequences, including unnecessary or overwhelming demand for health-care services, inordinate or erroneous precautionary behaviour, avoidance of places and activities that bear a low risk of infection, with resulting negative effect on the community and its economy; inappropriate refusal or demand for vaccination, stemming from misinformation about the safety and effectiveness of vaccines; and avoidance of hospitals and health-care facilities out of fear of becoming infected by others. Another problem associated with the fear of becoming infected has been discrimination against groups of people perceived to be "at- risk" even if few people in those groups are actually contagious. Studies have shown that in times of perceived epidemic threat, public places its greatest trust in clinicians[17].

1. North America

a. Ontario (specifically Toronto), the other Canadian provinces and the United States[17]

Data from 13 randomly-selected public telephone surveys, comparing the public's response to SARS in Ontario (specifically Toronto), other Canadian provinces and the United States, suggest that even at a relatively low level of spread among the population, the outbreak had a significant psychological and economic effect. They also suggest that the success of efforts to educate the public about the risk of SARS and appropriate precautions was mixed. Some of the community-wide problems with SARS might have been avoided with better communication by public health officials and clinicians.

In early April 2003, 69 per cent of adults surveyed in Ontario, 57 per cent of Canadians surveyed outside of Ontario and 32 per cent of adults surveyed in the United States (U.S.) said they were concerned about contracting SARS. Concern declined during the course of the outbreak. When the U.S. public was told that people in Asia and Canada had died from SARS, portions of the population who described themselves as concerned increased.

In the Toronto areas (and Ontario as a whole), a larger proportion of households took various precautions against SARS than in the other Canadian provinces or the U.S. A number of Toronto-area households were taking precautions that could have a negative effect on the regions economy, including avoiding Asian restaurants or stores, public events and international air travel. Thirty five percent of U.S. adults surveyed believed SARS had made it unsafe to travel to Canada. Similarly, Ontario households were significantly more likely than the rest of Canada to report taking precautions against SARS. During the outbreak, a share of Toronto households and Ontario residents wanted to limit their contact with people they thought had been in Asia. In addition, 66 per cent of Ontario residents surveyed supported the idea that people arriving from areas of Asia that were experiencing outbreaks of SARS, should be quarantined or not allowed into Canada and Canadians should not be allowed to travel to those areas.

More than one in five residents of the Toronto area said they themselves, a friend or a family member had been quarantined due to SARS exposure. Among this "experienced" group, approximately one fourth said being quarantined had been a major problem. The two most frequently sited "major" problems related to quarantine were emotional difficulties related to the confinement and not being paid because they had to miss work.

If people are to respond appropriately during an outbreak of infectious disease, they need to have some basic knowledge of how the disease is spread and whether there is a vaccine against the disease or an effective medical treatment once someone contracts the disease. The level of public knowledge about SARS was similar in the Toronto area and the U.S. Although approximately nine in 10 individuals surveyed knew SARS was contagious and there was no vaccine against SARS. Only approximately one half knew there was no effective treatment. A majority of those surveyed in each region knew it was possible to contract SARS in each of five ways. Significantly more Toronto area residents than U.S. residents knew that one could contract SARS by touching objects or surfaces that had been in contact with someone with SARS. Approximately one half of those surveyed know SARS could be contracted through blood transfusions.

Public health officials and clinicians might have been more effective in reducing the number of people who took unwarranted precautions that could have a negative economic effect. In Canadian provinces outside of

Ontario and the U.S., where there were few cases of SARS, one would ideally have wanted to see fewer people expressing concern about contracting the disease and taking unnecessary precautions. Public health officials and clinicians need to examine how, in future, they might alleviate some problems experienced by people who are actually quarantined.

In an ideal world, news media would be more effective at conveying the level of risk and relative need for precautions in high-risk vs. low-risk areas. In future, one way to do this would be to work with local broadcast journalists in advance of a threat to ensure they know who to contact for up-to-date, credible information.

b. Edmonton, Alberta[18]

In Edmonton, Alberta, Capital Health Link proved to be an invaluable service in responding to questions about SARS. Residents and community physicians were regularly advised through media and other communication channels that Health Link was their first contact if they suspected an individual had SARS. The intent was to avoid having people enter emergency departments or physicians' offices and potentially infect other people. Such actions helped address staff concerns and manage any internal issues around safety. Through Health Link the region was able to deal with cultural and language differences. A special line was set up for residents who speak Cantonese and it was advertised in the Chinese community. Signs were posted at hospitals as well as the Edmonton International Airport, outlining necessary steps to take if people had certain SARS-like symptoms. Physicians with large numbers of patients from high-risk groups also received copies of the protocol, printed in English, French, Vietnamese and Cantonese. Templates for signs were sent to other health regions in Alberta. Work with media was coordinated through Capital Health Public Affairs, under the leadership of the medical officer of health's office to ensure consistent messages were sent out.

In a situation like SARS, the circle of who needs to receive communication outside of the health care system should be broadly defined. The region's education system started to pose questions around accepting foreign students and school trips planned to regions with SARS. Other major organizations and large employer groups started to contact Capital Health directly for clarification on SARS.

Monitoring the anxiety level of both internal and eternal stakeholders is invaluable. Capital Health Link proved to be an excellent tool for gauging public concern about SARS.

c. United States[19]

Because of their evolving nature and inherent scientific uncertainties, outbreaks of emerging infectious diseases can be associated with considerable fear in the general public or in specific communities, especially when illness and deaths are substantial. Public health strategies require a delicate balance between protecting the public's health and initiating exclusionary practices and treatments that can lead to fear and stigmatization of, and discrimination against certain populations. Mitigating fear and discrimination directed toward persons infected with and affected by infectious disease can be important in controlling transmission. Persons who are feared and stigmatized may delay seeking care and remain in the community undetected. Such fear can increase stigmatization when cases are identified at a later date. Stigmatization has social and economic ramifications that intensify feelings of fear.

Containing fear, which is integral to the public health management of a new disease such as SARS, is best accomplished by a behavioural strategy that addresses needs of the population at risk of being stigmatized. This strategy works best as a complement to a larger public health education and communication campaign. Communication techniques for the general public most frequently involve television sound bites, press conferences with dignitaries and health officials, and targeted release of information to mass media outlets such as newspapers and Internet sites. Although these risk communication strategies are critical for keeping public informed during an outbreak, they can fail to meet personal needs of the general public and the affected population.

A multidisciplinary Community Outreach initiative was undertaken in the United States by the National Centre for Infectious Diseases (NCID) and the Centres for Disease Control and Prevention (CDC) in April 2003 to rapidly assess, monitor and address fears associated with the SARS epidemic, in which Asian-American communities were particularly affected.

The team monitored stigmatization ideas and behaviours in the general population and media toward Asian Americans, who were disproportionately reporting stigmatization. Situational assessment included:

- Facilitating group discussions (teleconferences) with national, state and local influential leaders within the Asian community in the U.S. Leaders had five recommendations:
    - develop simple, tailored SARS prevention messages;
    - develop SARS information materials in various Asian languages;
    - disseminate SARS information through multiple and culturally appropriate channels, including (but not limited to) community visits, town hall meetings, and health education and communication channels to complement mass media messages);
    - establish partnerships with local Asian-American community-based organizations to educate the community;
    - ensure CDC continue to provide leadership and coordination in preventing and controlling SARS.
- Collecting and monitoring CDC Public Response Service data. (This also helped the team develop specific answers to frequently asked questions).
- Collecting and monitoring Asian-language newspapers and Internet sites. Information received from Asian communities was often inconsistent with coverage in the U.S. creating suspicion that the U.S. government was not telling the truth.
- Reviewing polling data.
- Conducting community visits, panel discussions and media interviews.
- Soliciting information from regional minority health liaisons nation-wide.
- Developing ongoing relationships with Asian American communities, particularly in metropolitan areas.
- Determining new data gathering strategies as needed.

Team response included:

- Working with Asian American communities to develop a culturally tailored intervention that promoted communication and understanding of facts related to transmission and prevention of SARS (Asian language materials, web-based information, educational hot line messages).

- Conducting community visits, panel discussions and media interviews (i.e. interpersonal connections) to:
    - provide evidence-based information and dispel misconceptions, myths and rumors.
    - act as a catalyst for bringing together a broad spectrum of organizations and persons in the community to create local networks to build community resiliency and capacity to mitigate fear (of note, more stigmatization occurred within the community than in the general population).
- Encouraging appropriate health-seeking behaviours for those who may have been exposed to SARS.

The team also worked to dispel myths, keep the general public better informed, prevent discrimination against SARS-affected communities and provide guidance for organizations hosting international visitors from SARS-affected countries. It advised other SARS emergency response teams on how to minimize risks of stigmatizing groups in their own communications.

2. Hong Kong

A random digit dialing survey of 1,115 Chinese adults in Hong Kong during March and April 2003 was undertaken to examine the public's knowledge and perception of SARS, and extent to which various precautionary measures were adopted[20].

The survey revealed substantial misinformation and false beliefs among respondents. Forty percent did not recognize infection could be transmitted through contact with contaminated objects and 55.1 per cent believed the infection could be transmitted by airborne route. A large proportion (30.1 per cent) believed they were very likely or somewhat likely to contract SARS while only one quarter believed they were very likely to survive if they contracted the disease (actual statistics — fatality rate of 2.8 per cent at the time of the survey and 15-20 per cent according to current best estimates). Precautions were practiced against droplet spread, but precautions involving contaminated objects were not practiced as frequently. Respondents with higher risk perceptions and a moderate level of anxiety were most likely to take comprehensive precautionary measures against infection, as were older individuals, females, more educated people and those with a positive contact history and SARS-like symptoms. The presence of symptoms was the only predictor for higher health services use.

Researchers suggest protective health practices, to interrupt transmission of the virus in the community, must take into account background perceptions of risk and anxiety levels of the public at large. Public health messages need to strike a delicate balance between being overly reassuring and unnecessarily alarmist. Continuing public education about preventive measures should be targeted at the identified groups with low current uptake of precautions (i.e. younger less educated males). Perhaps targeting health promotion messages through intermediaries of female significant others (e.g. mothers, wives or girlfriends) would be worth exploring. Sustained interventions towards changing social norms yield the most effective results.

For older persons in Hong Kong, the effect of SARS was overwhelming.[21] Many had become pessimistic and fearful, as mortality was very high (over 50 per cent) for older people infected with SARS. In addition, older people often suffered from chronic physical illness, necessitating visits to hospitals and outpatient clinics, where there was a higher chance of contracting SARS. A local survey among residents of nursing homes showed that over 70 per cent of elderly with SARS had acquired the infection from hospitals. Many older persons defaulted treatment and follow-up with negative consequences (e.g. patients with mental health problems suffering psychotic relapse and suicide). Furthermore, a nursing home resident was 3.6 times more likely than the general population to contract SARS. Another undesirable feature was the negative image and stigma imparted to older persons by the SARS epidemic. Older persons were often portrayed as "litter bugs" with poor personal hygiene, or "invisible SARS patients" spreading infection to HCWs because of their atypical clinical picture.

Interviews of 27 HCWs and 40 residents in a nursing home in Hong Kong were conducted to investigate their level of knowledge of SARS and its prevention.[22] Most elderly residents knew little regarding SARS and prevention strategies, despite access to outside news by TV, radio and visitors. Also, the worry and fear of an outbreak among staff was considered to be high. Tailored education programs to promote awareness and prevention of SARS for elderly are needed. Care must be taken to ensure constructive concerns do not become destructive fears. Also, more in-service training, channels for communication, support and counselling are strongly indicated for staff to promote disease prevention and improve quality of care.

3. Singapore

Telephone interviews with a representative sample of 1,201 adults 21 years of age and older in Singapore during the first three months of the SARS outbreak, looked at four public health issues: prevention measures, self-health evaluation, SARS knowledge and appraisal of crisis management[23]. Gender (women), age (35 years and older) and attitude (anxiety and perception of open communication with authorities) were associated with using preventive measures. Recommended preventive measures were not practiced uniformly. The most practiced measures were using soap when washing hands (81 per cent) and washing hands after sneezing, coughing or clearing the nose (72 per cent). The least practiced measure was wearing a mask over the mouth (4 per cent). The respondent's perception of their health was generally positive and they answered an average of 1.7 out of three questions on the transmission of SARS correctly.

4. Taiwan

A study was undertaken to assess the effect of the SARS epidemic on medical service utilization in Taiwan, using interrupted time-series analysis and National Health Insurance data between January 2000 and August 2003[24]. At the peak of the SARS epidemic, significant reductions in ambulatory care (23.9 per cent), inpatient care (35.2 per cent) and dental care (16.7 per cent) were observed. People's fears of SARS appear to have had strong effects on access to care. Adverse health outcomes resulting from accessibility barriers posed by the fear of SARS should not be overlooked.

E. Future directions

The report of Canada's National Advisory Committee on SARS and Public Health urges that the psychological well-being of health-care workers who deal with disease outbreaks, the responses of public and outcomes of intervention programs need to be set as priority areas of research[25]. Three elements are needed in future psychosocial research on the effect of infectious disease.

- A systemic perspective. It is important to determine the effects of the disease on often unseen populations such as family members, non-medical staff, medical colleagues in the community and public, as well as patients and HCWs for comprehensive and balanced planning to alleviate psychosocial burden or mitigate its onset.

- Prospective research. Because the psychological effect may persist or evolve over time, longitudinal studies will allow an assessment of the important determinants of psychological distress as well as protective effects of certain coping strategies, with potential application in early identification of cases requiring more intervention.
- Evaluation of outcomes of psychosocial interventions. This includes assessment of both individual and group-based interventions and of other measures such as staff education sessions, public education and responsive communication of new information updates. A clearer understanding of these beneficial or therapeutic elements will facilitate implementation of strategic mental health responses for people at risk.

Enhancing psychological well-being of HCWS, their families and community is a crucial tool in the continuing vigilance and fight against emerging infectious disease.

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FACT SHEET

Dealing with stress or feelings of fear because of pandemic influenza[1]

Many of us are anxious about the serious world-wide influenza epidemic because it is now in Canada. In the news or in discussions with neighbors and friends, you may be hearing reports about the effect the disease is having on individuals, families and public-health systems. You should know that health professionals are doing everything possible to contain and treat the disease.

What can you do about it?

It is normal to feel anxious or fearful. The best action you can take is to follow advice provided by public-health officials. Understanding all you can about caring for yourself and others may help relieve some of the stress. If you need to contact a professional, see contact information on the reverse side.

Are you worrying too much?

You will know you are becoming too upset if you change your daily routine when there is no need to. Signs you are worrying too much might include:

- thinking about pandemic influenza a lot.
- changing sleep habits or not wanting to get out of bed.
- eating a lot more or a lot less.
- avoiding others.
- not wanting to leave the house.
- feeling cranky and irritable, losing your temper.
- feeling anxious or depressed.
- feeling panic or having panic attacks.
- crying.
- drinking more alcohol.
- taking more prescription drugs.
- having difficulty concentrating on tasks at hand.

Talk about it

The first thing to do is talk about your feelings with someone you trust. This can be a family member, friend, religious leader or teacher. Don't be shy. It helps to get it off your chest. You can support each other. Talk about it as often as needed.

If you notice the behaviour of a loved one, friend or co-worker has changed, ask them how they are doing. Make time to talk. After you have talked, check in to see how they are doing. It shows you care and it can be a relief to both of you. Check in even if their behaviour has not changed. They may be upset but hiding it well.

If you or someone you love shows signs of too much worrying for more than a week or two, you should talk with a health-care professional. They will explain what is happening and help you find ways to cope better.

INFLUENZA SELF-CARE
It's in your hands

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[1] *Adaptation of the Mental Health Support Network of Canada "Dealing with the Stress or Fear You Might Feel Because of SARS".*

Pandemic influenza and your kids

Pandemic influenza can be upsetting to children and teenagers too. It's important to discuss this subject with them.

Reassure and let them know they can count on you and the adults around them. Provide facts. Give them a hug, too.

If you notice a behaviour change in your kids, discuss it with them. If it's related to fear of pandemic influenza, talk about it. Tell them the truth and reassure them. If this does not work, you may want to consider consulting a health professional, such as your family doctor, a nurse, psychologist or social worker.

Some behaviour changes to look for include:

- changing sleep patterns.
- being tired all the time.
- eating a lot more or a lot less.
- staying in their room.
- avoiding others.
- talking less.
- being cranky and irritable, arguing or fighting more with others.
- feeling sad or anxious.
- difficulty concentrating on tasks at hand, getting poor grades.

Pandemic influenza and other traumatic events

People may feel more anxious about pandemic influenza because they are upset about other world events. This is not unusual. People who have recently experienced a sad or traumatic event may find pandemic influenza more upsetting. Traumatic events can include a car accident, the loss of a loved one, the loss of a job or a serious health problem. It's normal to feel more stressed under these conditions.

If this happens to you, talk with a friend or loved one. If symptoms continue for over a week or two, you may want to talk with a health-care professional.

Pandemic influenza and the health-care system

The actions taken by health officials to help keep us safe from the disease may cause disruptions that are difficult. Health appointments and procedures, which may have been planned for a long time, could be delayed or cancelled. You may not be able to see loved ones or friends in the hospital. This can be very upsetting. Health officials will do everything they can to deal with the pandemic and make the best possible use of health services during this difficult time.

For more information contact:

Health Link Alberta
Edmonton, call 408-LINK (5465)
Calgary, call 943-LINK (5465)
Outside Edmonton and Calgary local calling areas, call toll-free 1-866-408-LINK (5465)
visit: **www.healthlinkalberta.ca**

Public Health Centres
(Monday - Friday, daytime hours), or
physicians or pharmacists

Alberta Health and Wellness
visit: **www.health.gov.ab.ca**

Alberta